PACKAGE engineering

In this issue—

Our booth-by-booth review of the Packaging Machinery and Materials Exposition

Starting on Page 61.

Fitting "deal" packaging into your lines

Deciding to tape two cans together for a "deal," the engineers came up with tape application at production line speeds, then built the entire "deal" operation into a confined area between existing lines. (See page 21)

Here's the latest in sterile packaging

Careful planning of facilities and coordination of services contributing to packaging operations go hand in hand with precautions assuring sterility in a building used only for sterile packaging. (See page 28)

Tracing back the "pedigree" of adhesion

A thinking tool and method of analysis useful not only when investigating adhesion difficulties, but also when examining and solving a wide range of other packaging problems. (See page 34)

Complete table of contents on Page 2

MARCH 1958

VOLUME 3 • NUMBER 3

Bill Bronander, as President of PMMI, says:

Welcome to the 1958 PM&ME

Atlantic City, N. J. March 25 to 28

Bill Bronander, as President of Scandia Manufacturing Company, says:

"See The Latest In Cost-Trimming Packaging Automation ... Don't Miss The Scandia Exhibit Booth No. 409"

SCANDIA Manufacturing Company
North Arlington, New Jersey

BUNDLING • BANDING • MULTIPLE WRAPPING • STAMPING • HIGH-SPEED WRAPPING

For more information circle No. 201 on Reader Service Card

Aluminum Foil Packaging – Vitamin Retention

Report No. 14 of a Series by Reynolds Metals Company

THE ability of aluminum foil packaging to protect foods against deleterious changes in flavor, odor, appearance and freshness has been demonstrated both qualitatively and quantitatively in previous reports of this series. Moreover, this protective ability can be readily confirmed with the unaided senses of sight, taste and smell. On the other hand, losses in the nutritional value of packaged foods—particularly of vitamins—are beyond detection by human senses and can be determined only through laboratory analysis.

The importance of vitamins is, of course, well known not only to the medical and dietetic fields but also to the housewife. She knows that many food products are being fortified and she is on constant guard to get the best of this enriched value in the food she purchases. Yet the retention of some vitamins in packaged foods has not received adequate attention.

Most Susceptible Vitamins

Those most susceptible to destruction by oxidation are Vitamin A and Ascorbic Acid (Vitamin C). The presence of oxygen or an oxidizing agent is not the only factor contributing to the loss of these vitamins. Under normal storage or shelf life, for instance, it has been determined that light catalyzes and greatly accelerates this oxidation, as does heat. Riboflavin (Vitamin B_2) is readily photolyzed, or degraded, on exposure to light.

Recent studies* have been made to determine the effects of packaging on enriched, partially-baked rolls with attention focused on the retention of Riboflavin. Packaging materials tested were a transparent cellophane, a semi-opaque waxed paper and Reynolds heat-sealing aluminum foil wrap, Reyseal. The packages were stored at 74° to 78° F and subjected to light of 100 foot-candle intensity for eight hours daily. Majority of the light was supplied by fluorescent tubes, with a portion from a north window exposure.

Shelf Life Extended

A seven-day test was run. While rolls in cellophane or waxed paper would become stale and unsaleable in less than a week, the seven-day period was chosen in order to take account of the extended shelf life made possible by aluminum foil.

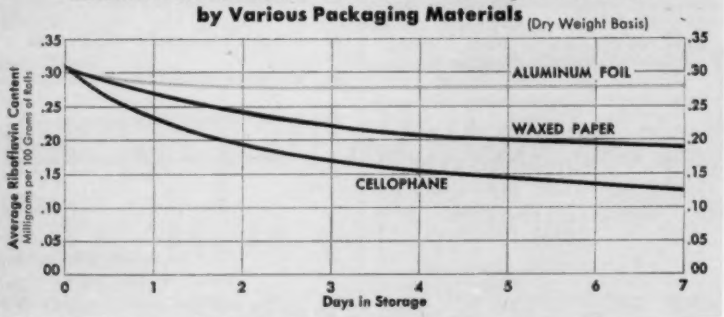
Riboflavin losses in typical cellophane and waxed paper packages were significant while losses of this magnitude were not observed in the foil-packaged product. The accompanying graph of actual average Riboflavin content (dry weight basis) shows that losses after two days totaled: cellophane 40%, waxed paper 21%, aluminum 10%. The foil-wrapped rolls then suffered no further loss while losses in cellophane and waxed paper increased to 61% and 40%, respectively, at the end of the test.

Another important point is that many metals and impurities in other packaging materials actually act as catalysts in the oxidation of vitamins or otherwise accelerate their deterioration. Aluminum does not. For this reason, foods that are compatible with aluminum can safely be packaged in direct contact with it.

Aluminum foil packaging, because it keeps out moisture, oxygen and light, because it reflects radiant heat and because it does not catalyze the oxidation of vitamins, will retain foods at their highest quality nutritionally. For further information on this and other phases of aluminum packaging protection, call the nearest Reynolds sales office. Or write to **Reynolds Metals Company,** General Sales Office, Louisville 1, Kentucky.

*Tests performed for the Reynolds Metals Company by the Wisconsin Alumni Research Foundation; report published in *Food Technology*, Vol. II, page 608, 1957.

Retention of Riboflavin in Enriched Partially-Baked Rolls by Various Packaging Materials (Dry Weight Basis)



© 1358 by Reynolds Metals Company, Louisville, Ky.

Watch Reynolds All-Family Television Program "DISNEYLAND", ABC-TV.

For your calendar

March 24-26. PMME Technical Sessions, sponsored by the TOC Committee of Packaging Institute, Convention Hall, Atlantic City. Contact: Charles A. Feld, Packaging Institute, 342 Madison Avenue, New York 17, New York. *Telephone: Murray Hill 7-8875.*

March 25-28. The Packaging Machinery & Materials Exposition of 1958, sponsored by the Packaging Machinery Manufacturers Institute, Convention Hall, Atlantic City. Contact: Hanson & Shea, Inc., Exposition Management, Suite 759, One Gateway Center, Pittsburgh 22, Pennsylvania. *Telephone: Atlantic 1-8552.*

April 22-24. Research and Development Associates, Food and Container Institute, annual meeting. Palmer House, Chicago. Contact: Col. Rohland A. Isker, Secretary, Research and Development Associates, Food and Container Institute, 1819 W. Pershing Road, Chicago 9, Illinois. *Telephone: Lafayette 3-5500, Ext. 4262.*

May 26-28. AMA National Packaging Conference, Hotel Statler, New York. Contact: E. King Graves, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

May 26-30. AMA National Packaging Exposition, New York Coliseum, New York. Contact E. King Graves, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

October 13-15. Packaging Institute, 20th Annual Forum, Edgewater Beach Hotel, Chicago, Illinois. Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Avenue, New York 17, New York. *Telephone: Murray Hill 7-8875.*

October 14-16. Society of Industrial Packaging and Materials Handling Engineers, 13th National Industrial Packaging and Handling Exposition, and SIPMHE short course, Chicago Coliseum, Chicago, Illinois. Contact: C. J. Carney, managing director, Society of Industrial Packaging and Materials Handling Engineers, Suite 1534, 14 E. Jackson Blvd., Chicago 4, Illinois. *Telephone: Harrison 7-6123.*

See us at
The Packaging Machinery
and Materials Exposition
March 25-28, 1958
at
Convention Hall,
Atlantic City
Booth 904

MARCH 1958 • VOLUME 3 • NUMBER 3

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

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Emphasizing the details of machinery and methods, as well as the coordination of individuals and groups within and without the company.

28 **Developing facilities for sterile products packaging,** by N. C. Kirsch, manager, sterile products department, Schering Corp.
Because of the need for maintaining sterility, the emphasis is on exceptional skill and care in planning and executing packaging tasks.

34 **Analyzing the adhesion operation,** by Frank C. Campins, president, and Daniel Siegel, product manager, Polymer Industries, Inc.
Although discussed in terms of adhesion, here is a thinking tool and method of analysis applicable to a wide range of packaging problems.

43 **Handy pull-out guide to Packaging Machinery and Materials Exposition and the Special Technical Sessions of Packaging Institute.**
Contains a list of exhibitors, their hotel headquarters, addresses and telephone numbers of these hotels, and a complete program of Packaging Institute's special technical sessions provided for the PMME.

57 **Simple package for mercury switches eliminates breakage, increases production efficiency,** by Stanley P. Schumacher, packaging designer, Micro Switch, Div. of Minneapolis-Honeywell Regulator Co.
Willingness to try new methods and experiment with new materials contributes to improved packaging at lower cost.

61 **The Packaging Machinery and Materials Exposition of 1958.**
A booth by booth report of machinery and materials which the various exhibitors will have on display at Atlantic City's Convention Hall, March 25-28.

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Reader Service Card inside back cover

Our December 1958 issue will carry a cumulative editorial index for the year listing our feature articles by subject, author, and other headings.

Smartest new way

to sail your "BOATS" of candy to market

(The fleet's in—in PLIOFILM!)

Packaging fine candies—especially of the jelly-type where loss of moisture means loss of softness and taste appeal—can be a real problem.

But it is a problem that has been solved handily by the 50-year-old Candy Division of Zion Industries, Inc., Zion, Illinois.

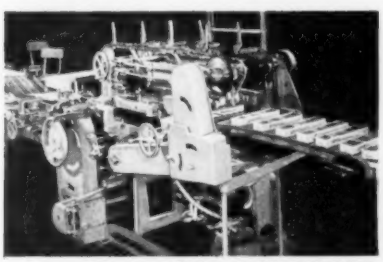
Take the candies shown above, for example, snug in their cardboard "boats"—*and safeguarded against dehydration by that amazing Goodyear packaging film, 120 FF* PLIOFILM.

Could it be that "FF" stands for "Flavor Fresh?" Certainly PLIOFILM delivers Zion candies just that way.

Breakage insurance is assured through the extreme puncture-resistance and resolute heat-sealability for which PLIOFILM is famed.

A great performer on high-speed automatic packaging machinery—PLIOFILM makes a smooth, tight wrap and *stays* wrinkle-free because it is unaffected by moisture!

WHY NOT? Better investigate—because the price and performance of PLIOFILM makes it a natural choice for smart packaging at a profit. For details, write: The Goodyear Packaging Films Engineer, Packaging Films Dept. 0-6432, Akron 16, Ohio.



Package Machinery Model FA

GOOD THINGS ARE BETTER IN

Pliofilm

60th YEAR

BY

GOODYEAR

Pliofilm, a rubber hydrochloride – T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

A note from the Publisher

The second biennial Packaging Machinery and Materials Exposition is being held in Atlantic City, March 25-28. In view of the many developments in packaging machinery and packaging materials, and today's emphasis on efficient packaging, this is a show you can't afford to miss.

The Packaging Machinery Manufacturers' Institute, which is sponsoring the show, has seen to it that exhibitors, wherever possible, have working exhibits so you can actually *see* packaging materials in use and the packaging machinery in which you are interested in action. I have talked to quite a few of the exhibitors and they all are planning on having both sales and technical personnel in their booths so you can get "on-the-spot" answers to your packaging problems.

Starting on page 61 in this issue you will find descriptive material on the show, and the yellow tinted centerspread of the magazine contains not only an exhibitors' list, but also their booth numbers and hotel headquarters. We've included names, addresses and 'phone numbers of every hotel given as an exhibitor's headquarters. Tear this centerspread out and take it along with you as a guide to the show and an easy way to locate any of the exhibitors after show hours.

The exposition lasts four days, and running concurrently with it are the Special Technical Sessions conducted by the Packaging Institute. These sessions start on March 24, the Monday afternoon before the show opens, and on Tuesday and Wednesday mornings before show time.

At the date of this writing, some 140 exhibitors have signed up for space. K. B. Hollidge, chairman of the Exposition Committee, reports that it is about 25 per cent larger in exhibit area than the first show sponsored by PMMI and held in Cleveland 18 months ago. You can, however, cover the show thoroughly in one day if your time is limited. If you can spend only one or two days at the show, I'd recommend that you look at the program the Packaging Institute has lined up and then plan on attending on days when you not only could see the exhibitors you're interested in, but also attend the technical sessions that are particularly pertinent to you.

This is *your show*. Its exhibits are restricted to products of specific interest to men like yourself—men who are responsible for the efficient packaging of their companies' products. We urge you now to make plans to attend.

If you will fill out and mail the pre-show registration card that is bound into this issue, the show management will have a badge waiting for you when you arrive at the convention hall that will admit you to the show, thereby saving some time at the show and also assuring you of a name badge that is legible at 50 feet. Do it now!

Angus J. Ray
Publisher

PACKAGE® engineering

AN ANGUS J. RAY PUBLICATION

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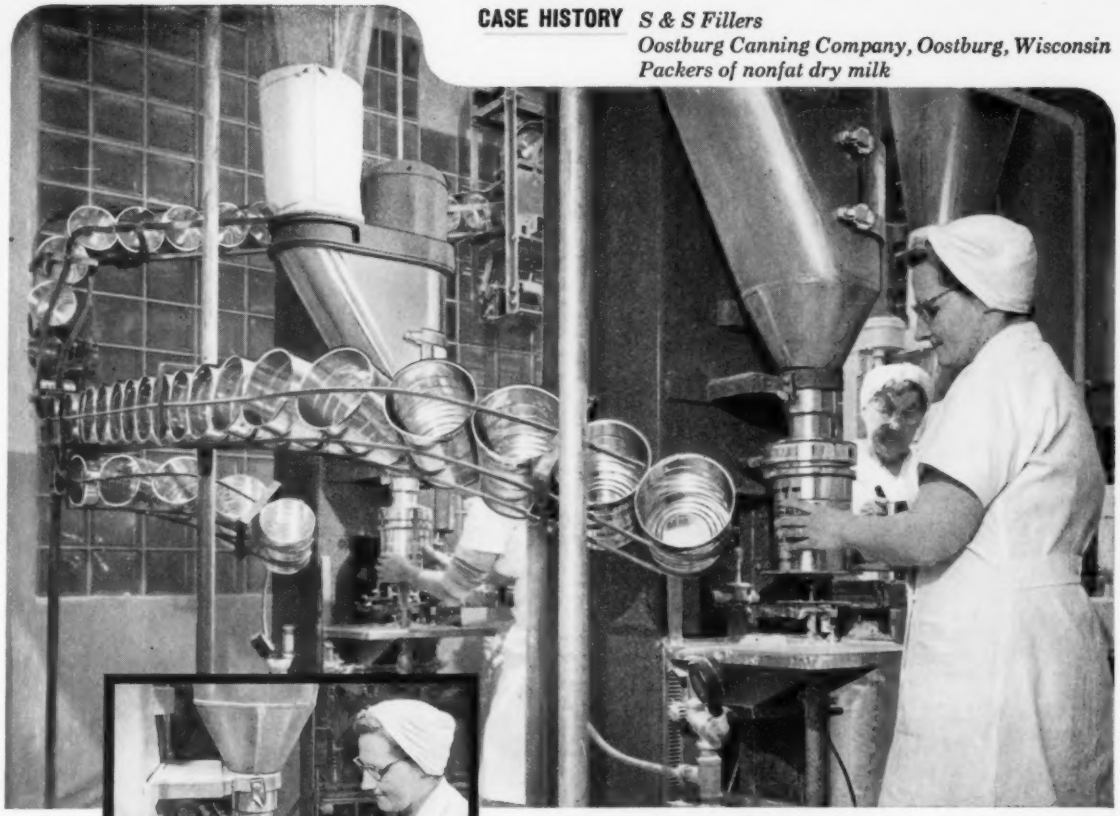
CASE HISTORY *S & S Fillers*
Oostburg Canning Company, Oostburg, Wisconsin
Packers of nonfat dry milk



Number 10 cans are fed to the EG Filler via conveyor where they are positioned by the operator. The Auger-Vac then removes the proper amount of air permitting the filler to load 4½ pounds of powdered milk into the can at a rate up to 25 cans per minute without "dusting."

Powdered milk filling loss less than .00058%

"Of the more than 200,000 pounds of powdered milk we handle each day, we lose only 110 to 115 pounds—or .00058%—due to dusting at the loading hoppers and filling stations. This amount would be much larger if we did not have Stokes & Smith Fillers with Auger-Vac attachment," reports Mr. Ellsworth Van Driest, secretary-treasurer of the Oostburg Canning Company.

"Before buying our fillers, we inspected other powdered milk operations to determine which machines were most efficient. We found that Stokes & Smith equipment led the field by a wide margin. In addition to three S & S G1 Fillers, we also purchased two S & S EG Fillers to permit quick easy conversion from packaging in 4½ pound, No. 10 cans to bagging cartons when the latter package is required.

"We have found our fillers to be dependable, rugged, well-designed and versatile. After two years of constant use, they are never down longer than one hour at a time. This ease of servicing plus versatility helps us maintain our 'full status' with U. S. Dept. of Agriculture packaging requirements."

For complete information on the versatile EG Filler, write to:

FMC PACKAGING MACHINERY DIVISION

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Stokes and Smith Company

4994-M SUMMERDALE AVE.
PHILADELPHIA 24, PA.

For more information circle No. 204 on Reader Service Card

If it's in opaque containers...

DETERGENTS—G-E HYTAFILL automatically monitors height-of-fill of liquids and free-flowing solids in opaque containers. Can be adapted to existing conveyor lines. Real money-saver, with exceptionally low cost.

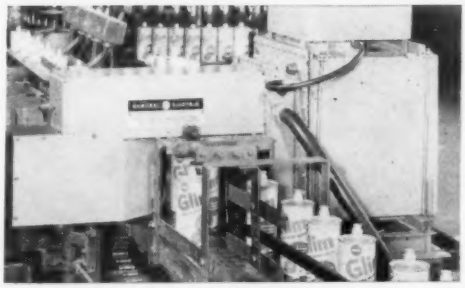
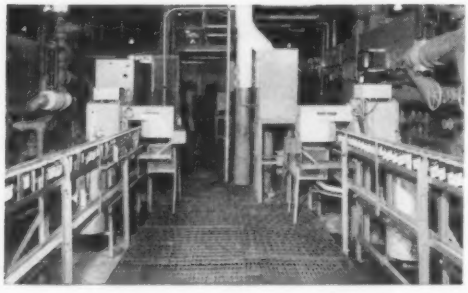


Photo courtesy B. T. Babbitt, Inc.

If it has to move fast...



BEVERAGES—Up to 900 cans per minute can be checked for both over- and underfill. You get full-time detection at minimum expense. And HYTAFILL requires little space.

Photo courtesy Miller Brewing Co.

If accuracy is essential...

EVAPORATED MILK—Variations of 1/32-inch are detected by the x-ray beam — signal for automatic rejection. No "leakers" slip through that can mean a spoiled product.

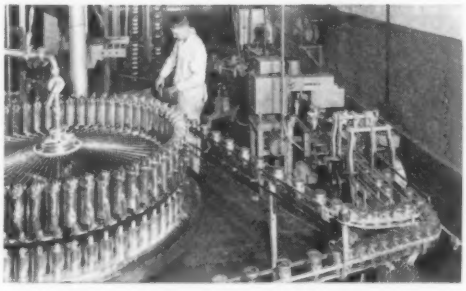


Photo courtesy Dean Milk Co.

G-E HYTAFILL® X-RAY MONITOR

can cut inspection costs

Whether it's new construction or modernization, have your G-E x-ray representative demonstrate HYTAFILL'S economies to you. Or write X-Ray Dept., General Electric Co., Milwaukee 1, Wis., for Pub. PE-34.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Letters to PACKAGE engineering

Re: Packaging education

Gentlemen:

It is certainly not too early to start trying to shape packaging education towards its more substantial responsibilities.

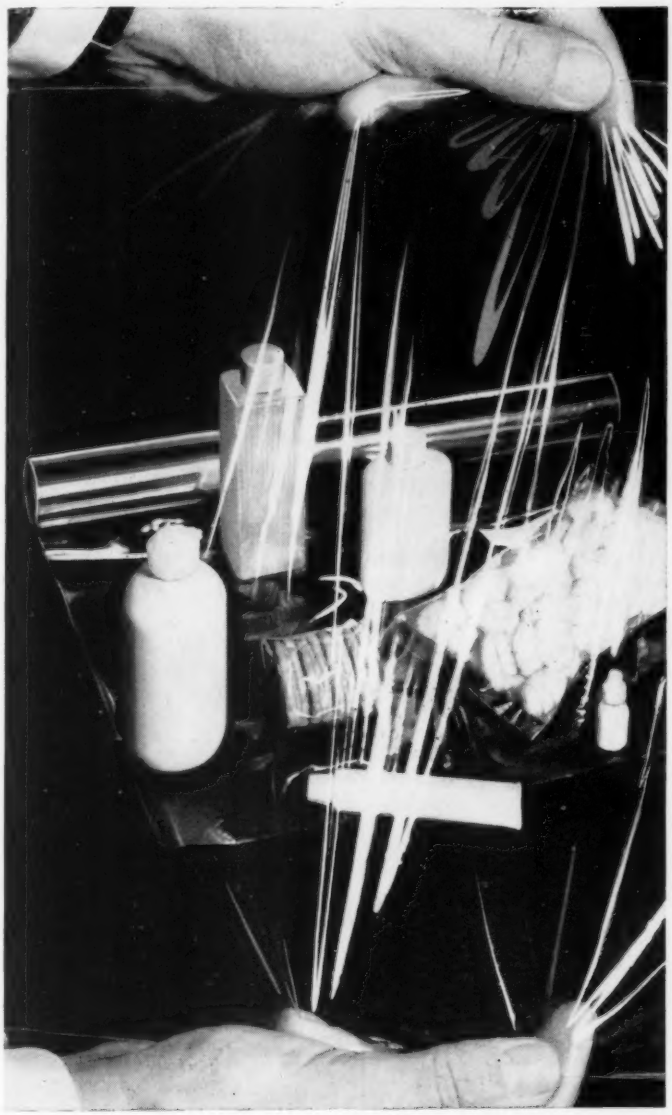
In this educational effort, we have come across the same basic problems that exist in all types of technical education—namely, the "area of urgency" and the "area of fundamentality."

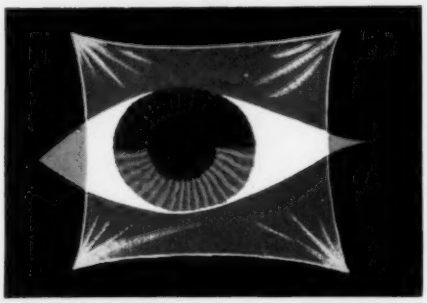
In these respective areas, packaging is probably prone today because of the urgent need to emphasize the "hardware" as you quote in your editorial. However, it becomes increasingly important if we are to prepare for the broader and the more basic problems to train people to approach the problems from the standpoint of basic training in the physical sciences.

Frank C. Campins
President
Polymer Industries, Inc.
Springdale, Connecticut

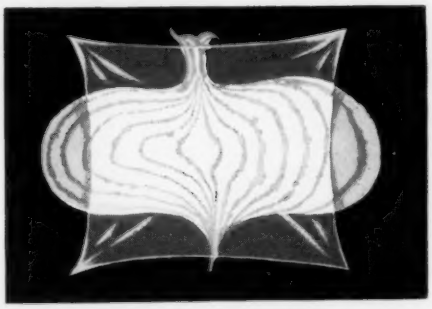
In view of your being the chairman of Packaging Institute's education committee, we particularly appreciate your suggestions. To reiterate what we said in our editorial on page 56 of our January issue, there is no easy answer to the question of attaining a balance between the immediate need for practical, operational training and the equally pressing need for graduates trained in sciences—to tackle our problems of the future.

The big point is that regardless of current concessions to expediency in the interest of getting reasonably well qualified packaging specialists now, we must not lose sight of our ultimate goal. There can be no compromise with the highest

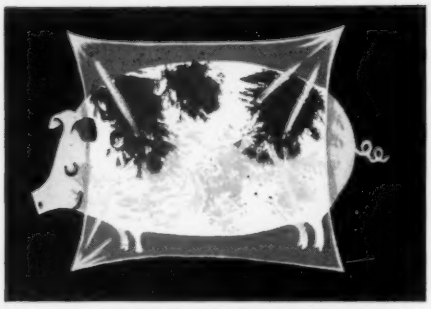




Improved clarity



Reduced gas permeability



Improved resistance to oils, grease, chemicals

Dramatic improvement for polyethylene packaging with saran resins

Saran is the synonym for protective packaging! And saran resins will coat your polyethylene materials with this added protection . . . and save you time and money in the coating operation.

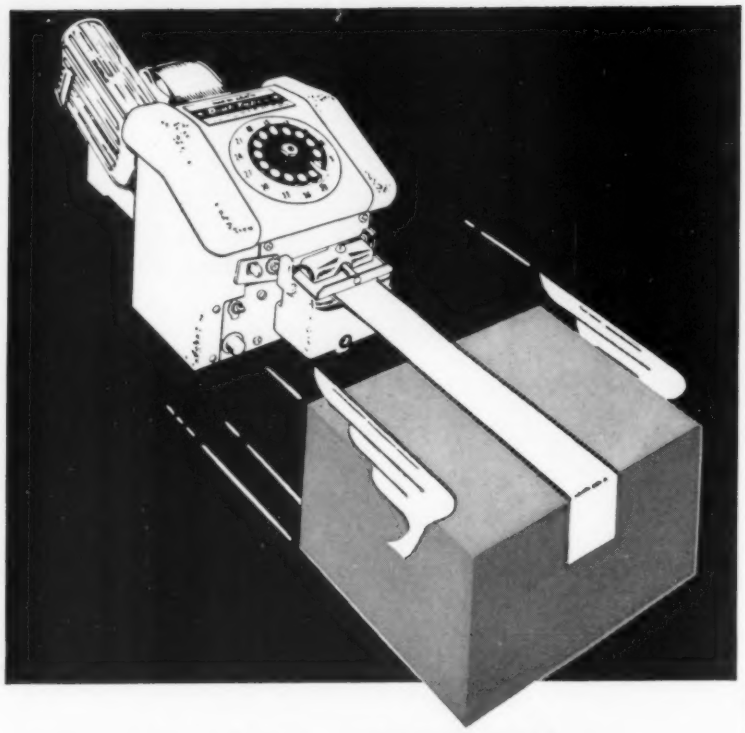
A thin coating of saran resins reduces gas permeability and improves clarity. It adds outstanding resistance to oils, greases, acids and many organic liquids and vapors. It helps polyethylene meet the needs of a wide variety of new applications.

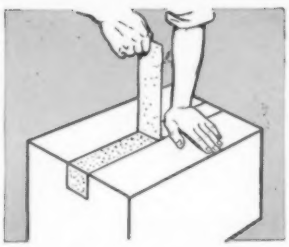
But there's more to coating with saran resins coating than product benefits. They are adaptable to commonly used equipment. A new saran resin is soluble in acetone, releasing solvent at lower temperature. Drying requirements are lowered . . . coating cycle is speeded up . . . costs are less.

For other packaging films, for paper, too . . . it will pay you to get the technical data on saran resins from Dow. Write today to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1879A.

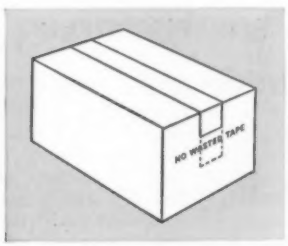
YOU CAN DEPEND ON DOW

For more information circle No. 206 on Reader Service Card





TAPE STICKS TIGHT—Make the tear test. Try to pull off tape applied from a Marsh Dial-Taper. Carton tears first, proving that the seal is stronger than the board.



NO WASTED TAPE—Any tape that overlaps end of carton more than 3" is wasted. Marsh Dial-Taper measures exact tape length you need, saves up to 1 tape roll in 5.

T-30

SHIPPING WORK FLIES

WITH A MARSH ELECTRIC DIAL-TAPER

Dial desired length—out comes moistened, ready-to-use tape for any size carton.

Electrically-heated water softens tape glue for complaint-proof seal. Uses regular kraft or reinforced gummed tape.

Users report, "quick, strong seal and neat, uniform packages. Up to 20% savings in time and tape."

See the Dial-Taper in action, taping your own cartons. For free demonstration, phone your nearest Marsh dealer, or write . . .

MARSH Electric Dial-Taper

Marsh Stencil Machine Company, 34 Marsh Bldg., Belleville, Illinois

Letters to PACKAGE engineering

standards of packaging education if we are to equip ourselves to meet the challenges of the 1960's and beyond.

Re: Odor, flavor transfer

Gentlemen:

Please send us a copy of the bibliography which appeared with the article "Taking a 'new look' at our odor, flavor transfer problems" in the January, 1958, issue.

Daniel P. Knopf
Laboratory Manager
Brown-Forman Distillers Corp.
Louisville 1, Kentucky

Gentlemen:

In the January, 1958, issue of PACKAGE ENGINEERING we read with interest an article prepared by Mr. S. F. Brockington titled "Taking a new look at our odor, flavor transfer problems." On page 36 we note that you will be glad to send individual copies of a complete bibliography pertaining to this subject. We would appreciate your sending us two copies of such bibliography.

K. F. Lang
Quality Control Laboratories
Packaging and Sterilization
H. J. Heinz Company
Pittsburgh 30, Pa.

Gentlemen:

I should appreciate your sending me one or, if the supply is adequate, two copies of the bibliography appearing at the end of the "Odor-Flavor Transfer" article in your January issue.

James M. Berry
Purchasing Agent
Vick Chemical Company
Greensboro, N. C.

We have sent copies of this bibliography to you and all the others who have requested it. We are always happy to furnish, without charge, extra copies of individual articles as long as our supply lasts.

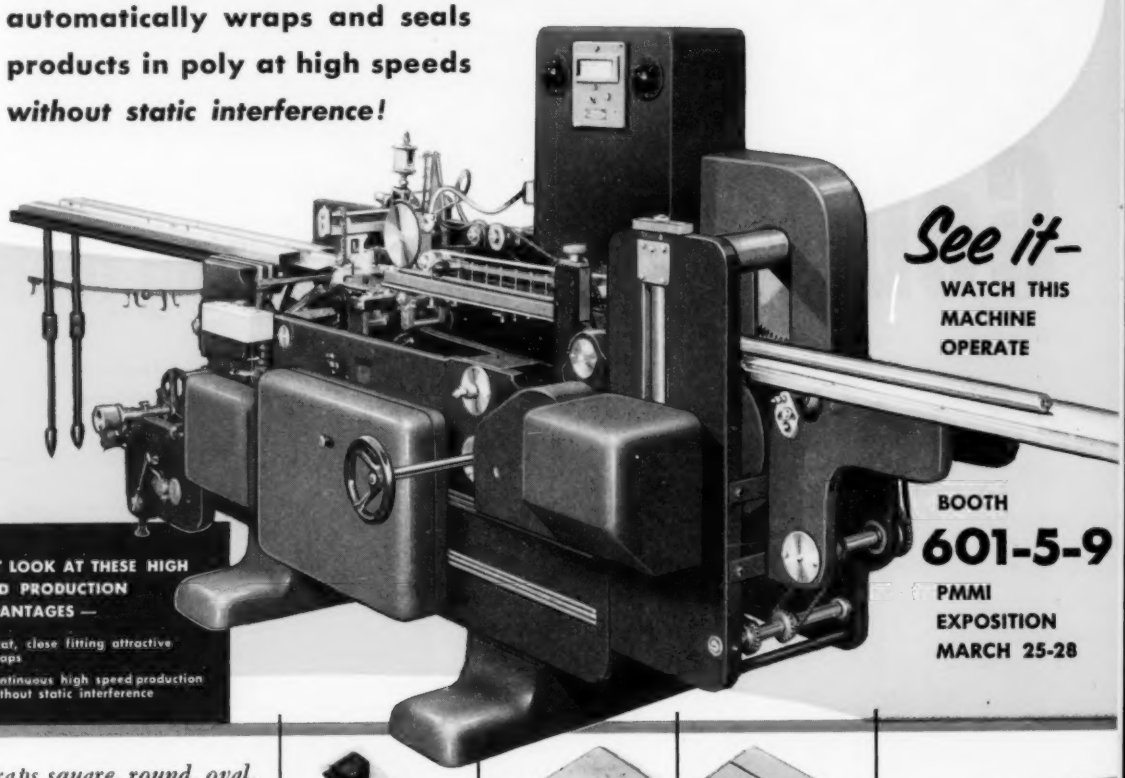
For more information circle No. 207 on Reader Service Card

For more information circle No. 208 on Card

Here's the answer to your problems of how to—

Package Wrap with Poly

Continuous feed CAMPBELL WRAPPER automatically wraps and seals products in poly at high speeds *without static interference!*



See it—

WATCH THIS MACHINE OPERATE

BOOTH

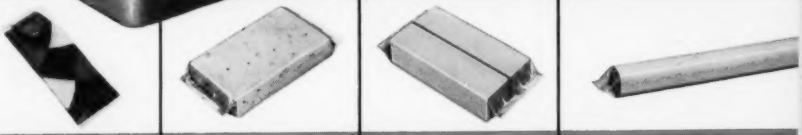
601-5-9

PMMI EXPOSITION MARCH 25-28

JUST LOOK AT THESE HIGH SPEED PRODUCTION ADVANTAGES —

- Neat, close fitting attractive wraps
- Continuous high speed production without static interference

Wraps square, round, oval, cylindrical or irregular shaped products with equal ease



- Saves materials — wraps without stiffening boards unless desired.
- Saves labor with one person operation
- Controlled dwell time insures positive tube and cross-sealing
- Constant, automatically regulated heat controls
- Wraps without crush or breakage

It takes a CAMPBELL Wrapper to handle POLYETHYLENE *automatically* and still provide trouble-free, high speed packaging production. Exclusive "float" wrapping from continuously fed roll stock is the answer. In operation, tubing is formed from the Polyethylene web and "floated" around the product. Package is then sealed lengthwise, ends formed, sealed, and cut to length — *at speeds up to 90 units per minute!* There is no static interference slow-down or stoppages as in most sheet-wrap processes. On the Campbell Wrapper, Poly cross-sealing is controlled to provide the dwell time necessary for a positive seal. Investigate this modern, advanced design wrapper. You'll be amazed at the wide range of product shapes it can wrap — how much it saves in time, labor and materials. Send us a sample of your product so we can advise how the Campbell POLY-Wrapper may solve *your* problem.

Putting Ideas to Work

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION

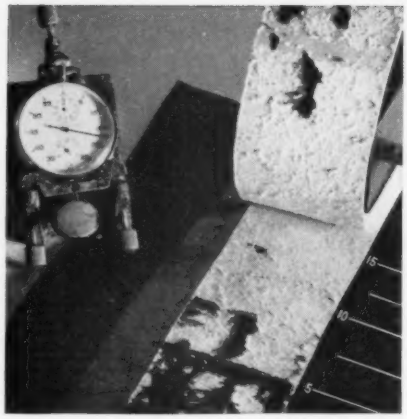
FMC Packaging Machinery Division

Hudson-Sharp Machine Company

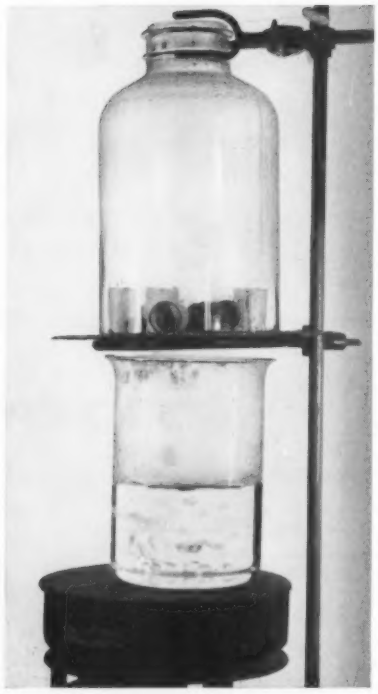
1201 MAIN STREET, GREEN BAY, WISCONSIN

Fiber tear within 5 seconds!

Photo shows how Seban AR-1—carton-sealing adhesive—produces a fast, strong bond. Seban holds, the paper fiber tears. This speed test can be duplicated on actual packaging machinery. Seban grabs in less than 5 seconds, produces a good bond in 12 seconds and tears paper completely within 17 seconds. Choose Seban for fast developed tack, strong bonds.



Seban wins tough sealing tests!



36 minutes in live steam!

This photo shows how Seban AR-5—tube-winding adhesive—resists both heat and moisture in sterilization of paper tubes for surgical products. Steam pouring into bell jar won't produce delamination on tubes sealed with Seban—not even after 36 minutes. Choose Seban for great resistance to heat and moisture!

New line of polyvinyl resin packaging adhesives from Armour

Seban can help you solve your toughest package-sealing problems. Conclusive tests prove Seban meets every packaging need—Cartons—Cases—Window Boxes—Folding Cartons—Tubes—Bags—and more. Seban will help you get increased production and better sealing quality!

Use one of the following machines?

ABC • Dacam	Mor-Can-Pak
Dacamatic	New Jersey
Elliott • Ferguson	Peters
Gar-Pak • Globe	Pneumatic Scale
Hayssen	Post • Potdeven
International	Rockwell • Scandia
Jones • Master	Standard-Knapp
Monitor	Staude

Test the grade of Seban that's right for *your* particular need.

* * *

Don't miss the Seban display in Booth 129—Packaging Machinery and Materials Exposition—Atlantic City, March 25-28, 1958.

ARMOUR ADHESIVE DIVISION

Armour and Company, 1355 W. 31st Street, Chicago 9, Ill.

120 Broadway
New York 5, N. Y.

Delaware and Spring Garden Streets
Philadelphia 23, Pennsylvania

Meta Lane
Lodi, New Jersey

235 South Hamilton Street
High Point, North Carolina

210 pound squeeze!

Revealing photo demonstrates how Seban AR-2—case-sealing adhesive—withstands extreme pressure.* Compression test proves Seban can take almost any amount of palletizing—more than 200 pounds—and hold, even when the case breaks down. Choose Seban when great bonding strength is important.

**Gauge shows lbs. per square inch on cylinder—equal to 1/7 actual compression between plates.*

MAIL THIS COUPON

SEAL WITH SEBAN FOR SUPERIOR SEALING!

Send for: PE 3-58

- ☐ New Seban literature
- ☐ A 5 gal. sample at your quantity price, and data on the grade of Seban best for:
  - ☐ Carton sealing
  - ☐ Case sealing
  - ☐ Window boxes
  - ☐ Folding cartons
  - ☐ Tube winding
  - ☐ Bag sealing

Armour Adhesive Division
1355 West 31st Street • Chicago 9, Illinois

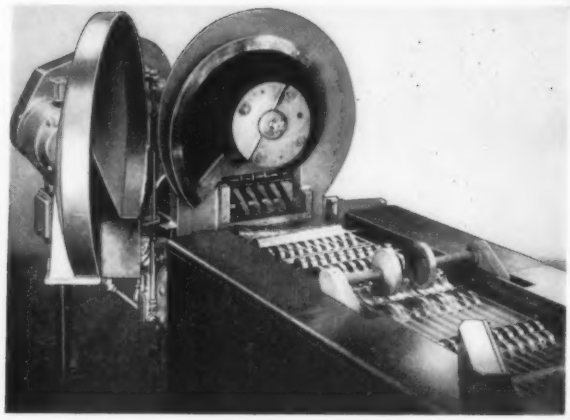
NAME_____

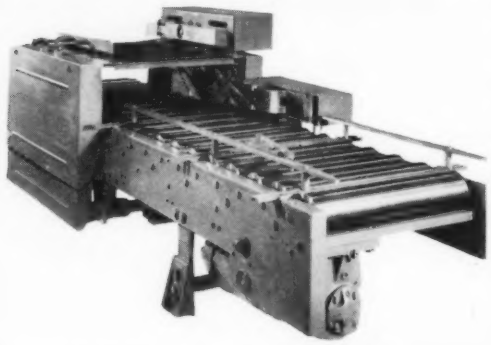
POSITION_____

FIRM_____

CITY_____ STATE_____

see what's NEW at STANDARD-KNAPP





EMHART BACON LINE that is revolutionizing packing operations—unit slices, shingles, precision weighs and prepares bacon for packaging.

AUTOMATIC CASE FEED with Bottle Packer—for smooth, cushioned loading of bottles into cases at speeds to meet maximum requirements.

PUT
BOOTH 306
ON YOUR
"MUST VISIT" LIST

Get the full facts about these and other Standard-Knapp packaging and package handling machines.

EMHART MFG. CO.
STANDARD-KNAPP DIVISION
Portland, Connecticut

CROWN POLY PAPER IN ACTION:

When triggered by moisture, these tablets release fungus-killing gas

His orange arrives free of fungus and toxic sprays thanks to Crown Poly Paper

How Crown Poly Paper Helps Protect His Orange

Problem: How to protect oranges while in transit from the dangers of blue and green mold.

A package built like a Dagwood sandwich gave the answer. Called "Winn-Mat"*, this sandwich consists of Crown polyethylene coated paper heat sealed to porous toweling stock with nine ammonia tablets bonded in between.

Two of these packets accompany each case of oranges. When humidity (the fungi's ideal environment) mounts, the toweling side transmits moisture to the tablets, which are activated to release their gas through the porous paper. This vapor fills the orange carton and checks the fungi. The Crown Poly Paper side, which is always placed *toward* the oranges, prevents ammonia from burning the fruit. When exposed to the air, every trace of ammonia immediately disappears leaving fruit fresh, safe and fungus free.

This "Winn-Mat" demonstrates but one of Crown Poly Paper's many applications in the packaging field. Is there some task Crown Poly Paper can do cheaper, faster, more effectively for you? Write Department PY, at the below address for technical advice on your packaging problem.

*Registered trade mark of Winning Inc.

CROWN ZELLERBACH
343 SANSOME STREET, SAN FRANCISCO 19, CALIFORNIA

3M Announces new Wide-Web "Scotchpak" Polyester Film

NOW in rolls up to 50 inches wide—industry's first heat-sealable polyester film

NEW LOW PRICE brings extra savings for you—and extra-wide web gives you economical application.

NEW METALIZED "SCOTCHPAK" Brand Heat-Sealable Polyester Film looks like aluminum foil, yet can be flexed indefinitely without affecting film properties. Water vapor permeability is only .02 gms/100 sq. in./24 hrs. Air permeability is only 0.2 cc/100 sq. in./24 hrs. Retains properties through temperature range of —70°F. to 230°F. Printable, too!

NEW CUSTOMER SERVICE offers quick assistance on film fabrication and packaging problems.

NEW "SCOTCHPAK" is the heat-sealable polyester film developed by years of painstaking 3M research. It gives you balanced properties found in no other single film: it takes a heat seal as tough as the film itself with a temperature of 275°F. to 375°F. and 20-60 psi. It has a high degree of inertness and resistance to extreme temperature conditions. Resists solvents, chemicals and moisture—yet has extremely high tensile strength. In standard form, it is as clear as glass. Can be printed.

For more complete information on the dramatic new packaging material, write 3M, Dept. LY-38, St. Paul 6, Minn.

TRADEMARK **SCOTCHPAK** BRAND POLYESTER FILM

MINNESOTA MINING AND MANUFACTURING COMPANY

...WHERE RESEARCH IS THE KEY TO TOMORROW

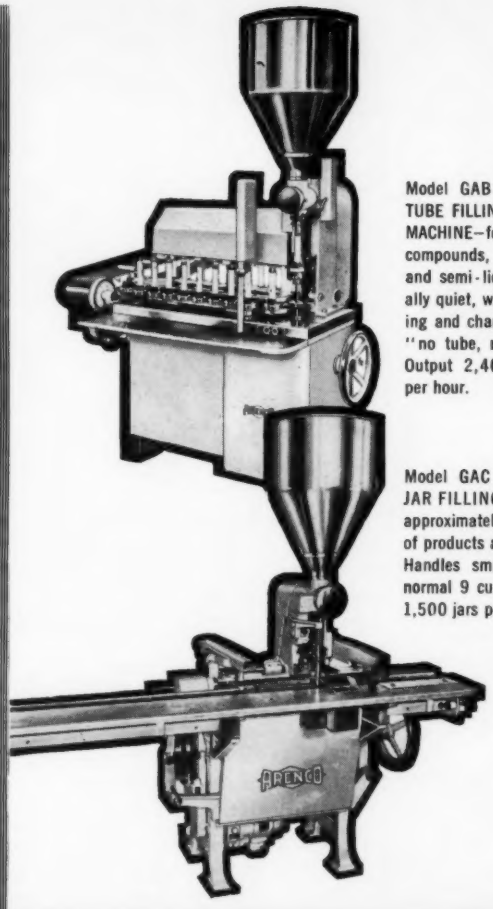
3M COMPANY

SPECIFY MORE THAN "SATISFACTION"

SPECIFY

ARENCO

Planned ahead for modern needs . . . in design, materials and craftsmanship – and for operational convenience! Arenco's policy has always been to go beyond minimum requirements – to give you the extra value that assures dependability and surpasses "satisfaction".



Model GAB Fully Automatic TUBE FILLING AND CLOSING MACHINE—for packaging thick compounds, creams, liquids and semi-liquids. Exceptionally quiet, with easiest cleaning and changeover, includes "no tube, no fill" features. Output 2,400-3,000 tubes per hour.

Model GAC Semi-Automatic JAR FILLING MACHINE. For approximately the same kind of products as the tube filler. Handles smaller jars up to normal 9 cu. in., at 1,200-1,500 jars per hour.

Model GAM BOTTLE OR JAR FILLING MACHINE. For up to 1 quart sizes. Suitable for marmalade, apple sauce, mayonnaise, mustard, paint, varnish, oil and similar products. Output 1,200-1,500 containers per hour.

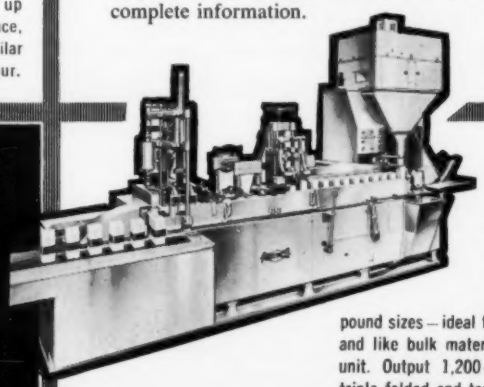
It means painstaking engineering, the use of finer materials . . . always more rigid quality control. That policy has proved successful because users know and appreciate the extra value that Arenco filling and sealing equipment provides.

It costs no more to specify Arenco – it does mean a finer, more reliable piece of equipment.

We'll be pleased to tell you about our complete line– and help solve any filling problem you may have. Write today for complete information.

ARENCO

MACHINE COMPANY, INCORPORATED
25 West 43rd Street • New York 36, N. Y.



Model VUV Fully Automatic BAG FILLING AND SEALING MACHINE. For SOS bags – ½ to 5-pound sizes – ideal for coffee, flour, cereals and like bulk materials. Includes weighing unit. Output 1,200-2,000 bags per hour, triple folded and tape sealed.

How much does a penny weigh?

Very little, only bits of an ounce. But add this small amount daily to the packages of a production line and at the end of a year it adds up to — **LOSS!**
Now, from the world of electronics comes the answer to costly "give-aways" — Avion's High Speed Weighing System.

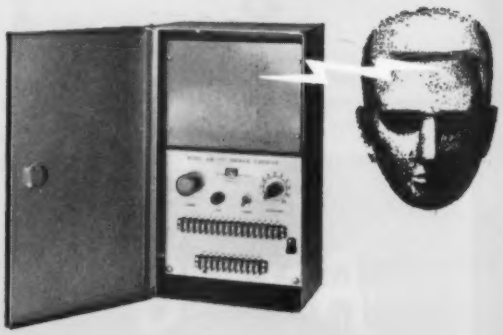
Gain **Positive Quality Control** by use of Avion's sensitive weighing cell and flexible electronic controls. Electronic "Feed-back" of process information to filling controls eliminates "over—under" weight variations.

If a weighing problem is slowing down your production, let Avion evaluate your weighing requirements for **Positive High Speed Quality Control.**

Send for literature — today

FEATURES

- *High speed—up to 150 packages per minute*
- *Greater fill accuracy*
- *Check weighing*
- *No vacuum tubes—transistorized*
- *Versatile*
- *Rugged—reliable*
- *Self Taring Memory System*



AVION acf

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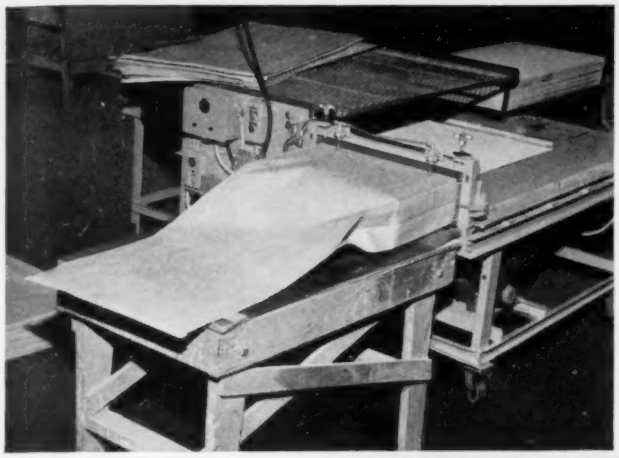
MILITARY · INDUSTRIAL
Equipment and Components · 11 Park Place, Paramus, N. J.

acf INDUSTRIES INCORPORATED

acf DIVISIONS: ADVANCED PRODUCTS. AMERICAN CAR AND FOUNDRY. AVION. NUCLEAR PRODUCTS — ERCO. CARTER CARBURETOR. SHIPPERS' CAR LINE. W-K-M.

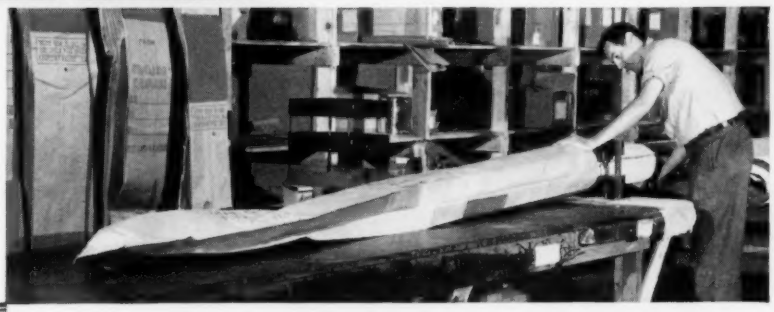


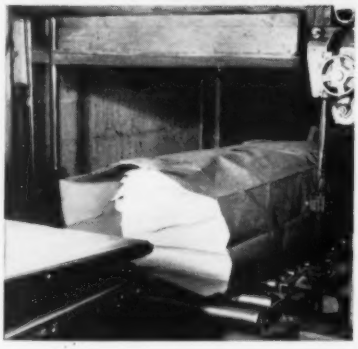
IS YOUR PRODUCT LARGE? . . .

This Bemis-engineered wallboard loader is almost automatic. The operator places the bag on the loader mouth. The machine, taking the stack of wallboard from the conveyor line, does the rest. This replaces an expensive hand-wrapping operation.

. . . ODD-SHAPED

An entirely different shape . . . and different problem . . . is a roll of carpet. However, one operator loads into a Bemis Paper Specialty Bag quickly, efficiently, economically.





AWKWARD TO PACKAGE? . . .

A Bemis Paper Specialty Bag is slipped over the compressor boards of the foam rubber loader. A stack of pads is fed into the loader (upper picture) and belt-propelled through the compressor. As the pads fill the bag, they push it onto a conveyor track (lower picture) . . . a neat, tight, compact package.

Costs are cut . . . packaging is speeded . . . with Bemis Equipment and Bags

Wonderful words: *Costs are cut . . . production is speeded.*

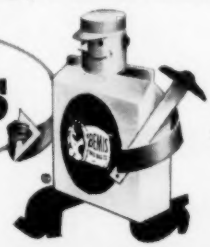
If your product is large, odd-shaped or awkward to package, chances are Bemis Paper Specialty experts can help you so you can report: *Costs cut . . . production speeded.*

The three widely different packaging problems illustrated here show the versatility and ingenuity of Bemis service.

Take the foam rubber pad experience. With a Bemis-engineered loader and Bemis Paper Specialty Bags, *two men now do the job that required four men when the pads were wrapped* . . . and the new packages are much neater, require less storage space and are more easily handled. Also, since the pads are compressed in the package, more pounds (and pads) can be carried in a boxcar.

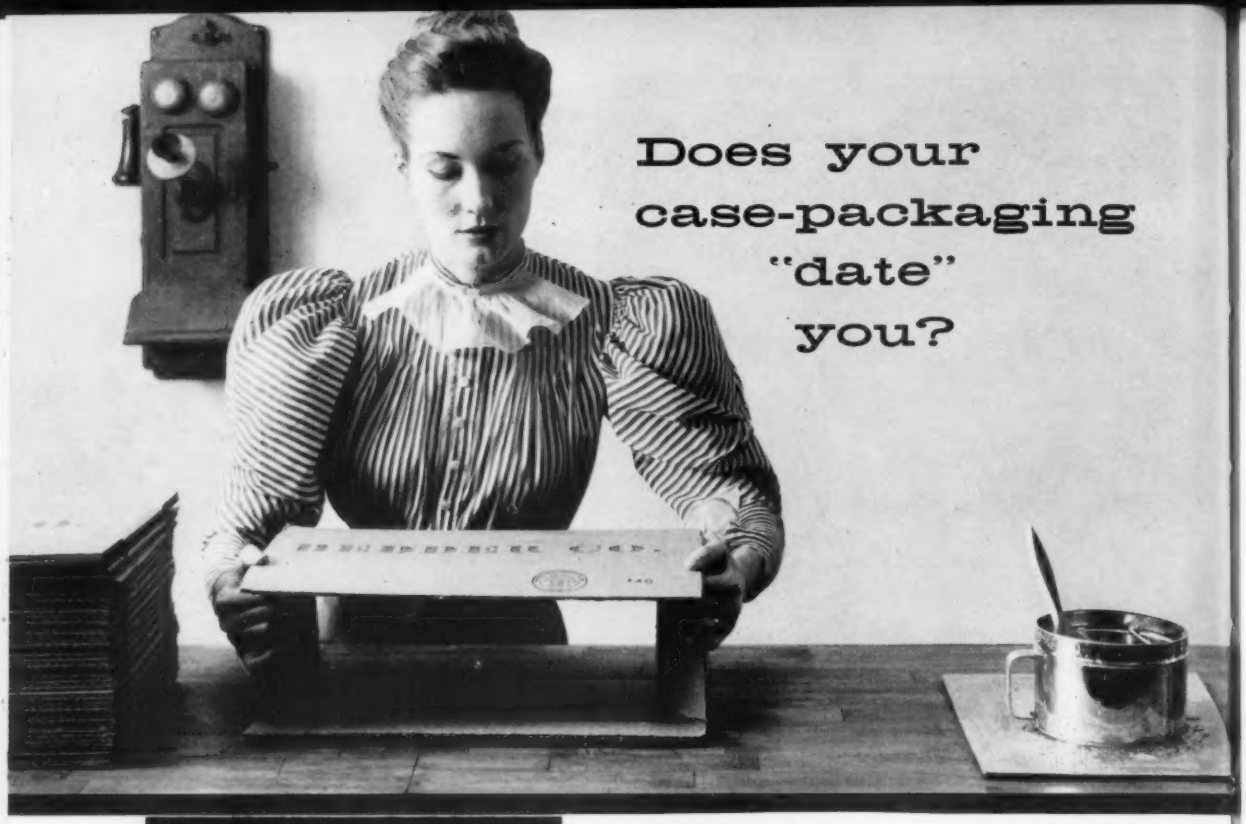
Write us about your packaging problem. We'll tell you if we can help.

Bemis

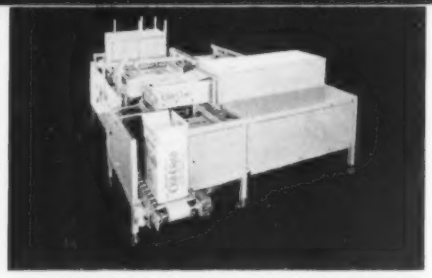


1058 S. Vandeventer
St. Louis 10, Mo.
Paper Specialty Plants

St. Louis • Albion, N. Y.
Crossett, Arkansas
Wilmington, California



Does your case-packaging "date" you?



FEEDER-FORMER-POSITIONER-LOADER-UPENDER

This machine in operation at the P. Lorillard Co. automatically end-loads regular and kingsize cartons of Old Golds at the rate of 400 cartons per minute (60 cartons per case in a 2x5x6 pattern) or nearly 5 million smokes an hour. A high-speed machine which forms cases, positions and loads fully-automatically can be the answer to your packaging line. Write us for consultation or for additional information and prices.

J. L. FERGUSON CO. Joliet 1, Ill.

New York, Chicago, Cleveland, Boston, Tampa, Baltimore, Portland, Denver, Los Angeles, San Francisco, Seattle, New Orleans, Louisville, Kansas City and All Principal Canadian Cities.

PACKOMATIC machines include the Bale Sealer — Case Sealers — Opener-Loaders — Case Imprinters — Telescoping Volumetric Filler — Packer-Gluers. Units available, semi-automatic or fully-automatic depending on your needs.

Packomatic

T.M. Reg. U. S. Pat. Off.

equipment feeds, forms, positions, loads, seals, and imprints shipping containers automatically

From the time the magazine is stacked with "knocked-down" containers until they are loaded, sealed and imprinted, ready for shipment—not a human hand is required. Here's automatic, foolproof equipment Custom-Engineered to do the whole job—or any part of it for less—and at a speed to match any production line. End-loading techniques save up to 28% on paper board costs alone. Labor savings are obvious. And, Packomatic Custom-Engineered equipment can do the trick for virtually any product; witness the case loading patterns below. Whatever your requirements, whatever your budget, there's a Packomatic machine to cut costs and boost production in your plant.

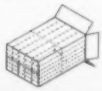
PREMIER SHOWING: Packomatic's newest high-speed bulk-packaging machine. PM&ME Booth 709.

Six 5-qt. cans or gallon cans in 20¼" x 13⅝" x 9 13/16" case and 20¼" x 13¾" x 8¼" case

Twelve 46 oz. cans in 21" x 13" x 7⅛" case

Twenty-four cartons in 12½" x 10⅝" x 8½" case

Eighteen 7 & 8 oz. cartons in 20" x 14⅞" x 8⅝" case



Sixty cigarette cartons King Size: 17⅞" x 11½" x 22" Regular: 14 13/16" x 11½" x 22"

TYPICAL CASE LOADING PATTERNS FOR CANS AND CARTONS

Twenty-four 12 oz. cans in 16⅜" x 10 5/16" x 5 5/16" case

Six No. 10 cans in 22 1/16" x 17⅜" x 7⅛" case

Thirty 1 lb. cartons in 16½" x 10 9/16" x 7¼" case

Twenty-four cartons in 19½" x 10⅜" x 7" case

Forty-eight cartons in 22¾" x 23½" x 15⅝" case

cut these pieces out of your packaging picture

and SAVE!

INTERESTED IN SAVING MONEY **AND** PACKAGING ATTRACTIVELY?

We admit this is an unnecessary question because **everybody** is! But the Roto-Wrap Model 'B' actually does just that! It forms a film, foil or heat-seal coated paper package around your product in one completely automatic operation thereby **eliminating the following costs:**

1 — The purchase of a container.
2 — Inserting the product (usually by hand).
3 — Sealing the package.

Roto-Wrap is high speed. Roto-Wrap is versatile. A quick changeover packages your other products within the overall size range. What's more, Model 'B' is the machine to package those limp and irregular products that have defied flexible handling up to now.

Put a 'Roto-Wrap' on the end of your production line and watch your labor costs drop while these handsome packages push your sales up!

check this list for your product!

AIRCRAFT PARTS
BABY ACCESSORIES
BISCUITS
BANDAGES
BATHING CAPS
BOLTS & NUTS
BRUSHES
BUSINESS CARDS
BUTTONS
CIGARETTE LIGHTERS
CLOSET ACCESSORIES
COSMETIC PADS
COMBS
COSTUME JEWELRY
COTTON PADS
CRAYONS
CUTLERY
DENTAL SUPPLIES
DISH CLOTHS
DOILIES
DOLL ACCESSORIES
DUST CLOTHS
ELECTRONIC PARTS
ELASTIC GOODS
ELECTRIC SUPPLIES
EMBROIDERIES
FASTENERS
FISHING LURES
FOOD PRODUCTS
FOOT PADS
FOUNTAIN PENS
GASKETS
GAUZE
GIFT WRAPPINGS
HAIRNETS
HAIR GOODS
HANDKERCHIEFS
HARDWARE PARTS
HOSIERY
LACES
MANICURE SUPPLIES
NECKWEAR
NETTINGS
NOTIONS
NOVELTIES
PAPER PRODUCTS
PENCILS
PHYSICIANS' SUPPLIES
PLASTIC PRODUCTS
POT HOLDERS
POWDER PUFFS
RECORDS
RELIGIOUS GOODS
RUBBER BANDS
RUBBER PRODUCTS
SANITARY ITEMS
SCREWS
SHOE LACES
SILVERWARE
SLIDE FASTENERS
TOYS
UNDERWEAR
WATCH STRAPS

MODEL "B" UNIT PACKAGER
by
Roto-WRAP

The Model 'B' packages products on up to 9" wide. Optional equipment includes electric eye registration, hole punch and coding attachments.

typical Roto-Wrap package.

ROTO-WRAP MACHINE CORP.
SALES AGENT
CONAPAC CORPORATION
120 EAST 13TH STREET, NEW YORK 3, N. Y.

CONAPAC CORP., 120 E. 13 St., N.Y.C.

Gentlemen:
Please send additional information on the Model 'B'. My product(s) is_____

NAME_____

FIRM_____

ADDRESS_____

CITY_____ ZONE____ STATE____

Exhibiting At The P.M.M.I. Show In Atlantic City, March 25th-26th.

Sheffield—first to put toothpaste in tubes, in 1892—has served packagers for over half a century in producing billions of tubes for—

MEDICINAL ointments—salves—jellies—extracts.

DRUG AND COSMETIC pastes—creams—shaving preparations—deodorants—depilatories.

INDUSTRIAL AND HOUSEHOLD cements—adhesives—compounds—greases—paints—fillers—food pastes, syrups, and creams.

TO FIND THE ONE RIGHT TUBE FOR YOUR PRODUCT

Send Us Your Product . . . . . .

. . . . . to assure compatibility of product with tube metals and tube linings and caps, our research staff assists Sheffield customers in selection of the one right tube for your product, by actually filling and testing the product in the recommended container.

The Sheffield Process . . . . . .

. . . . . an exclusive method of manufacturing collapsible metal tubes—is the result of four generations of study, research and manufacture which assures you safe, economical, highest quality tubes.

The Sheffield Technically Trained Representative . . . . . .

. . . . . will gladly explain how Sheffield technical superiority can insure the efficient and dramatic packaging of your product. He is more than just a salesman: he is a technician highly trained in the science of collapsible metal tube packaging.

For full information on Sheffield Tubes, write for our free brochure . . . no obligation, of course!

THE SHEFFIELD TUBE CORPORATION

HOME OFFICES · NEW LONDON, CONN.

W. K. SHEFFIELD, V. P. CHAS. ARCH (CHICAGO AREA) T. C. SHEFFIELD

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EXPORT: 500 FIFTH AVE., N. Y. CABLE "DENTIFRICE", NEW YORK

New England SHEFFIELD PROCESS TUBES

B. J. Pettibone is a graduate of Case Institute of Technology with a B.S. degree in chemical engineering. Following his service with the Navy, he joined the Johnson organization and has been with them for ten years. Before joining the company's packaging function four years ago, he was engaged in various experimental and process engineering functions. He also has participated in activities of Packaging Institute, American Management Association, and the Methods and Standards forum of the Racine Manufacturers Association.

Techniques of developing "one-shot" deal packaging on a production line basis

By B. J. PETTIBONE,
Senior Industrial Engineer — Packaging,
S. C. Johnson & Son, Inc.,
Racine, Wisconsin

Proper coordination *of pertinent company departments and close cooperation with outside suppliers are key factors in developing and installing a new packaging operation. Mr. Pettibone not only tells how all this worked well for his company on a "deal" project, but also reveals some practical solutions to machine, material, and operational difficulties.*

Developing a combination or deal package requiring a high volume of production in a very short time is a challenging assignment. Such activities stimulate experimentation and are highly conducive to the development of new packaging line techniques. A current example of how we package a large volume, one-shot type of promotion or free goods package is our Glo-Coat and Kleen Floor deal.

The project started when a marketing division product manager asked the production division's industrial engineering packaging group for assistance in designing, estimating, and coordinating the packaging of this combination. The package was to include a single-use quantity (six to eight ounces) of Kleen Floor in combination with a 32-ounce can of Glo-Coat. Total volume would be about one-third of a million units.

Use common can dimensions. Early experimentation with many sample packages favored a combination unit consisting of a standard 32-ounce can with a seven-ounce can of the same dimensions, except for height, which could be adjusted to give proper capacity. We saw that the smaller can could logically be placed on top of the larger one, providing we could work out a suitable method of securing them together. Since our schedule called for the production of one and one-third million units, the attaching or combining of cans had to be on a production line basis.

We saw a number of advantages in using the outside dimensions of our 32-ounce can for our seven-ounce can. We could utilize the new recessed bottom and centered nozzle style can to which our industry had recently shifted. We found the overall height of the combination (using a seven-ounce can of Kleen Floor) coincided with a 42-ounce can we used previously — and for which we owned size change parts for the case loader.

How To Attach Cans?

The big problem was that of attaching the cans. We considered pressure-sensitive tape and a spring metal clip. Prototypes were made using each method and compared. There were disadvantages in both methods. With the tape we faced a possible problem of greasy cans causing equipment downtime. We also had to design and build an automatic taping machine. With the clip we visualized the possible scratching of lithography during shipment. Removal of the clip by the consumer would be more difficult.

Getting the costs. Tentative material costs indicated $13,800 for taping versus $34,000 for clips. Labor costs appeared to be $9,250 for taping, compared to $15,400 for clips. Equipment costs were calculated at $11,000 for the tape method and $6,000 for the clip. This gave us a total of $34,050 for taping as against $55,400 for clip attachment. So we agreed to taping.

In planning our operation, we estimated a packaging line speed of 120 cans a minute, turning out 3,500 cases a day. In actual practice we did much better than this and oper-

ated the line at 140 cans a minute, turning out 4,000 cases on an average day. Also, we planned the line so that the Hard Gloss Glo-Coat cans could be filled whether or not the Kleen Floor Glo-Coat deal was being used.

New Line Fits In

Since we already had the Glo-Coat line established, it was necessary to dovetail the Kleen Floor line into the same area. We had a space problem because the distance between this line and the next operating line was only 15 feet. We could not extend beyond this because another product deal was in operation on the adjoining line. Also, we had to keep out of the way of a case conveyor from the floor above that passed through the general center of the Glo-Coat line area at an angle of 40°.

Normally our Glo-Coat line receives empty cans from the floor above the packaging floor and utilizes Horix filling and Consolidated capping machinery. The filled cans then go into a Ferguson automatic case packer. Filled cases then move through the sealing operation and to our regular storage area on our plant-wide conveyor system.

Run in opposite direction. We finally installed the new Kleen Floor line in a direction opposite that of the Glo-Coat line. It, however, received cans from the packaging floor, where it was filled and capped. Both products were packaged at one time and converged at one point in the building where they were taped together.

In developing the taping operation on a production line basis, we started with a basic Minnesota Mining flat surface tape dispenser. From here we worked out a series of motions and machine actions and devised schematically a machine to apply the tape to each two cans. In developing our equipment, we capitalized on the tack of the tape to pull the tape out of the roll. The units had solenoid-actuated controls. After we worked out our tentative design, Metro Tool & Engineering Company completed the engineering and built the machine.

Provide Double Taping

Since we found that we had to tape at 70 units a minute, it was necessary to have a double taping operation to meet our proposed line speed of 140 units a minute. Our taper used a double magazine so that the 32-ounce can and the seven-ounce can fed through side by side. After being taped, they turned upright to return to the line.

In the course of this operation we made extensive use of can twisting. For example. cans were twisted 90 degrees to reach a vertical position after the tape application and then moved to the case loader. We relied on outside help in developing our twisters — even though we had extensive experience with the twisting and conveying (as well as magazining) of cans. We had no hesitancy in providing for flat taping because we were sure of our ability to twist and transfer cans as needed.

But building a twister is a tricky project. One problem is that you cannot draw them on a board. It involves bending the stainless steel rods in just the right way so that there is no binding of cans in the course of making turns.

Since cans went through in pairs, and required tape top and bottom, there had to be four taping heads. In other words, we needed a duplicate dispensing action underneath. We therefore installed a conveyor infeed

SUCH PROJECTS INVOLVE MANY PEOPLE

Carrying out the package development and production line operation such as Mr. Pottibone describes in the accompanying article requires the help of many people. In this particular instance the company personnel included the following: Cost accountant, draftsman, production control assistant manager, buyer, product manager, assistant manager production section, senior patent attorney, assistant manager of maintenance, maintenance supervisor, engineering, planning-project engineer, personnel, assistant manager engineering planning, budget, methods analyst senior-packaging, methods analyst senior-engineering, methods analyst-senior-labor standards, purchasing manager.

Outside personnel included representatives of Minnesota Mining and Manufacturing Company, Noel Manufacturing Company, Associated Spring Corporation, Can Conveyors, Inc., Metro Tool & Engineering Company, and Sherwin-Williams Company. In addition numerous Johnson executives had to approve details of the project. These included production manager, industrial engineering manager, and similar key executives.

The management committee had to give its approval; the company's advertising agency as well as its own advertising department approved the surface design and appearance features of the new packaging.

to feed cans automatically. Flight bars pushed them through. Cans started out a short distance apart and were plowed together as they moved forward. By the time they reached the application point, they were butting.

In summary, we, with Metro, designed a machine to this requirement: To accept cans at a predetermined location in a horizontal position. Both types of cans were to be divided into equal columns, properly spaced, and delivered in a constant flow. The machine had to feed and unite the cans as prescribed, apply a three-inch length of tape smoothly along the joint of each base, and discharge the can in two columns. These operations were to be performed simultaneously and in two parallel lines through the machine. We further specified that the machine width could be no more than required to provide adequate space for proper design.

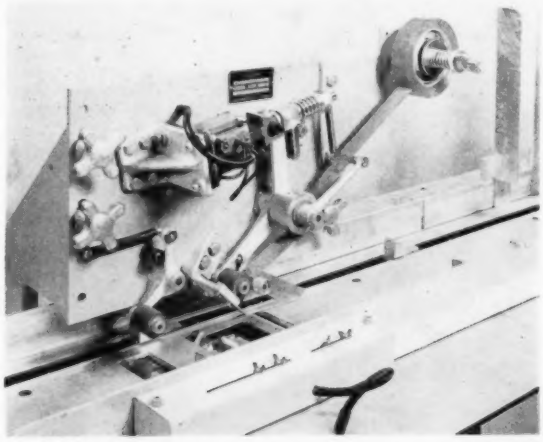
Choice Of Tape

The masking tape used was a standard paper-back with an extra-high tack adhesive. After selecting it, we had to be sure that cans would go through both car and truck shipments without separating. To determine this, we subjected the double cans to test shipments and also to a series of laboratory tests, including vibration, drop, and conbur testing. We found it helpful to analyze the relative positions of cans within a case with reference to vulnerability.

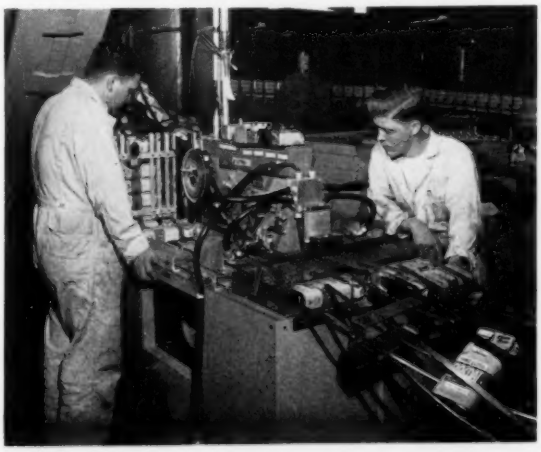
This study and evaluation revealed a problem of cans abrading side by side at the bead of each can, resulting in the tape splitting. To eliminate this we used a chipboard sheet, waxed on both sides, putting it between each row of cans.

Getting correct wax treatment. We went through some experimentation with the chipboard sheets to determine their specification. We tried varying weights of paraffin wax and came to use the established standard of dry wax. With a heavier wax treatment, an excessive amount would rub off. If we used anything less than the dry wax standard, there would not be enough wax on the board to do the

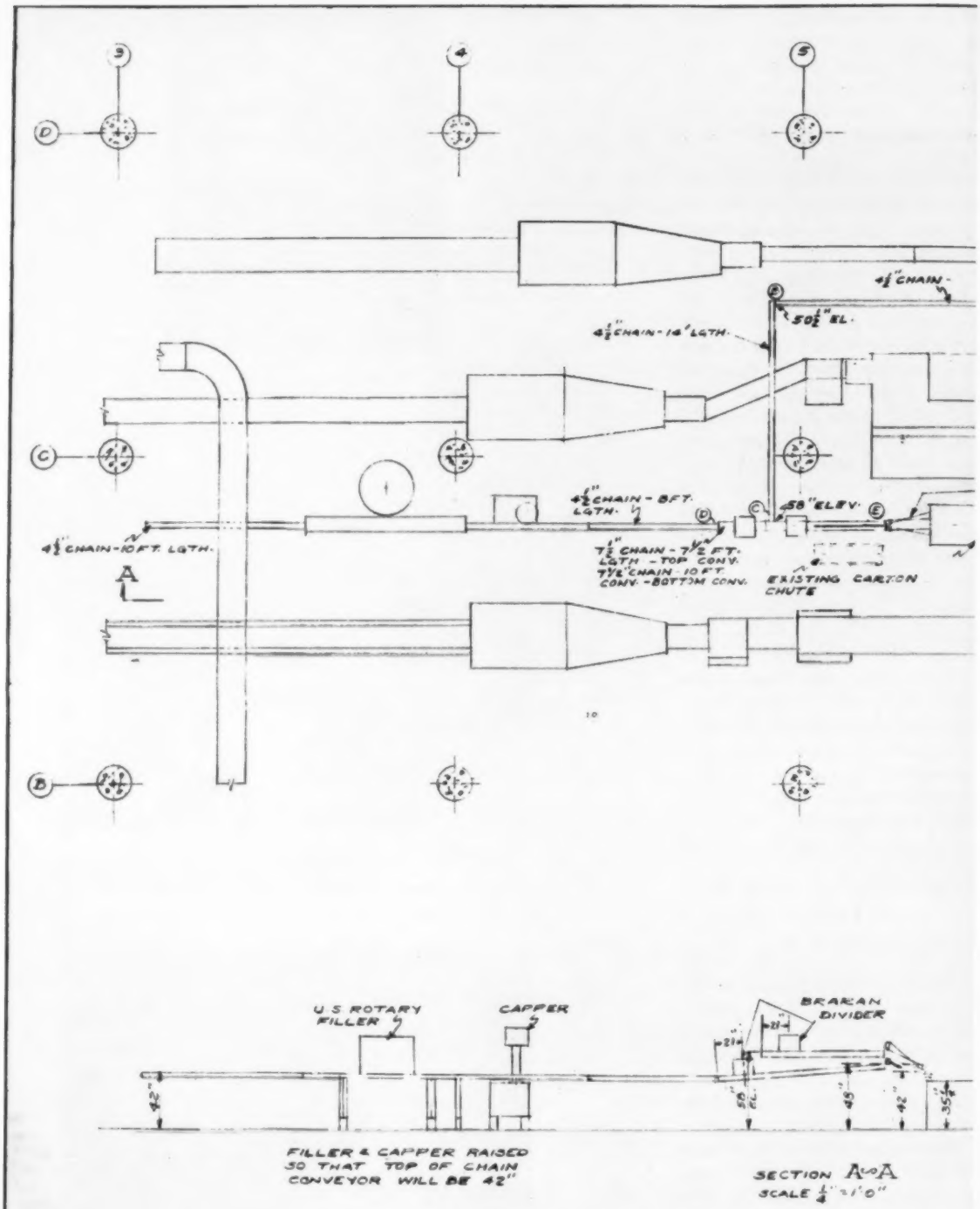
Using same can dimensions except for height permitted taping of cans. Recessed bottoms and centered nozzles permitted stacking and close fit of can seams. Tape is paper-back masking tape with extra high tack adhesive.



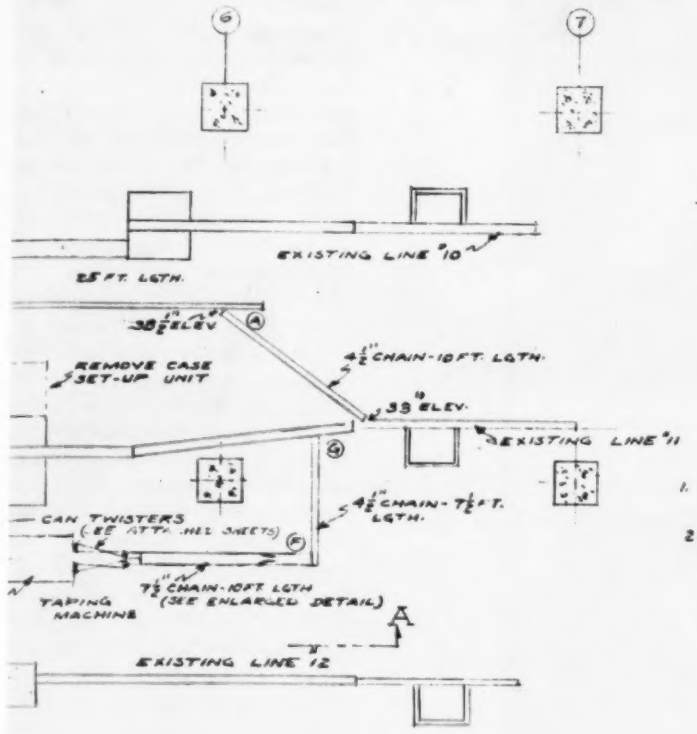
Starting with a flat surface tape dispenser (shown here), Johnson engineers worked out motions and machine actions, devising schematically a machine to apply tape to each two cans. Tack of tape helped pull tape out of its roll.



To tape at 70 units a minute, double taping operation was necessary to meet line speed of 140 units a minute. Completed taper has double magazines so 32-ounce and 7-ounce cans feed through side by side.



A glance at left half of the layout for this "deal" reveals minimum space available between packaging lines. Outline marking "existing carton chute" emphasizes another problem: Chute runs through the floor at an angle; new installation had to be built around it without disrupting it.



CHAIN BELT DRIVES

ITEM	MOTOR	CHAIN BELT SPEED
A	½ HP GEAR MTR. (NEW)	60'/MIN
B	½ HP MTR. & GEAR (COOPER SHOP)	60'/MIN
C	½ HP GEAR MTR. (NEW)	60'/MIN
D	½ HP VARISPEED (NEW)	60'/MIN.
E	¾ HP GEAR MTR. (BLDG. 2-A) (DRIVES 7½' & 10' CONVEYORS	30'/ MIN.
F	¾ HP VARISPEED MTR (COOPER SHOP)	70'/MIN.
G	½ HP GEAR MTR. (NEW)	60'/MIN

1. CONVEYORS DRIVEN BY MOTORS A, B & C ARE 6" DEEP ISLAND" HEAVY DUTY LOCATED IN COOPER SHOP
2. CONVEYORS DRIVEN BY MOTORS D & G ARE 4½" DEEP "ISLAND" LOCATED IN COOPER SHOP.

DETAIL SHOWING METHOD OF SEPARATING TWO ROWS OF CANS INTO SINGLE ROW
SCALE 1" = 1'-0"

NOTE:
ELEVATION A-A SHOW EQUIPMENT FOR DEAL ONLY, EXCEPT CONVEYORS WITH DRIVES (A) THRU (G) ARE NOT SHOWN.
COLUMNS ARE ALSO NOT SHOWN

DATE	REVISION

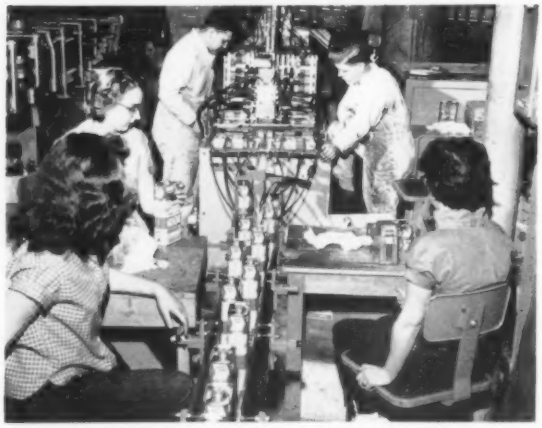
LAYOUT OF KLEEN-FLOOR GLO-COAT DEAL - FIRST FLOOR - BLDG. 30

S. C. JOHNSON & SON, INC.
RACINE, WIS. PLANT ENGG. DEPT.

DRAWN EK | DATE 1/24/58
CHK'D [illegible] | DATE 1-28-58
SCALE SEE DWG. | SHEET 1200

Conveyors and twists revealed by this half of floor plan drawing emphasize importance of alternate usages on this line. Cans not going through "deal" operation may by-pass it, move through regular channels for case packing. Note dimension figures: These indicate minimum space involved.

Glo-Coat cans (right) are moving to taping operation seen at left. Note use of twisters in background. New operation had to fit in between existing lines. Not visible is filling and capping line for Kleen Floor, fitted in for this deal.



Not only did taping operation have to take place in tandem as seen here, but equipment had to fit into space limitation. Case conveyor (seen behind man at left) goes through center of Glo-Coat line area at 40° angle — thus restricting use of floor space.

Johnson already had change parts for casing equipment since the double can deal height coincided with 42-ounce can previously used. Special problem of deal combinations in cases: Abrasion of cans side by side. Solution: Waxed sheets between can rows.

job. This served as a lubricant and eliminated the tape splitting.

We also considered a variety of alternate tapes, including those having filaments. These would give us the necessary protection, but were too expensive. In establishing shipping case sizes, we allowed just enough oversize to accommodate the board. The rounded nature of our F-style cans facilitated the slipping in of the chipboard sheets.

We cannot underestimate the value of our detailed laboratory tests to complement the shipping tests. It was absolutely necessary to solve the abrasion problem.

We had some special problems with the tape itself. Since we had to use tape with reverse printing, that is, all black except for the yellow lettering, we needed tape with approximately 90% ink coverage. With this amount of ink coverage, we found delamination occurred. The tape separated down the middle because the adhesive did not follow the tape in the course of its movement. We found this directly related to the question of ink coverage because it was taking place in the course of re-rolling the tape and apparently was due to inadequate drying. Our supplier solved the difficulty by adjusting the drying time to compensate for the special problems involved.

Efficient Use Of Butt Rolls

On our packaging line we found that the four rolls of tape on the machine did not run out at the same time. Even though all four rolls were apparently similar, because of manufacturers' variables and quality differences, the tape was consumed at varying speeds.

We found it cheaper to change all four rolls at once, although there were varying amounts of tape left on the rolls. In making the change, a two-man crew developed its change-over technique to a point where it could change four rolls in 25 seconds.

Printed tape for masking. But this left us with a supply of stub or butt rolls of varying amounts. We soon found a way to use these up. In the course of handling cans and bags, there is a certain amount of tearing

and breakage. Ordinarily we would use a masking tape in this operation. We found that by transferring the butt rolls of printed tape to inventory to be available as masking tape, these butt rolls could be used up quite efficiently. For this purpose, it didn't matter how much was in each roll. In this way we got our speed of change-over without having an excessive scrap loss.

We encountered a few maintenance problems on our taper, but the main one was overcome by having our mechanic change his own coffee break and lunch period so he was available to clean the machine at the two coffee breaks and lunch period during the course of a normal day's shift.

This regular maintenance was important on this deal because the cutting knives became gummed from the tape. The mechanic cleaned them with a toothbrush and carbon tetrachloride. The tape cut-off, therefore, was constantly maintained in good condition, ready for use.

Attaching direction folders. Another problem of our combination was to provide a direction or instruction folder with each combination. This folder gave the consumer more information than appeared on the can. We used a triple folder with a hole in the center so it would fit over a can neck. Girls on the line placed the folder over the neck of each can before filling and capping. When the cap was screwed on the can, it held the folder in place because the hole in the folder was smaller than the cap. Further, the shape of the folder conformed to the shape of the can top and was, in effect, inside the area within the lip or bead of the can.

One compromise we had to make was to remove the automatic case opener from our case packer. This was necessary because of the added height of the deal package. A girl was added to open cases. But once the cases were opened, they were packed automatically.

Use Of Personnel

Labor (for 4000 cases, 140 cans/min. @ 80% eff.)

	Men	*Girls*
Fill Kleen Floor:		
Feed cans	2	
Operate capper		1
Operate filler		1
Line operator	1	
Assemble & Pack Deal:		
Insert instruction sheet		4
Operate taping machine	2	
Balance lines		2
Fold cases and operate packer		2
Relief		1
Insert waxed separator		2
Net deal crew	5 Men	13 Girls
	Men	*Girls*
Fill Glo-Coat (Regular Crew)		
Feed can chutes	2	
Operate capper		1
Line operator	1	
Total crew	8 Men	14 Girls

CHECK LIST FOR COST ESTIMATES

The Johnson organization finds a check list helpful in developing product cost estimates. Not all of these items are necessary in every case, but they are used where pertinent and those spearheading a particular project obtain the data from the appropriate departments as required.

1. **Cost center.**
2. **Standard production quantity per day.**
3. **Days of operation to reach standard and estimated production per day during this period.**
4. **Breakdown of operations stating number of employees per operation.**
5. **Additional supervision.**
6. **Night premium cost.**
7. **Overtime cost.**
8. **Additional maintenance costs.**
9. **Packaging material costs.**
10. **Allowance for packaging artwork.**
11. **Allowance for container tooling.**
12. **Cost of factory supplies.**
13. **Purchase equipment costs.**
14. **Costs of equipment made by the Johnson organization itself.**
15. **Equipment installation costs.**
16. **Processing or filling loss.**
17. **Packaging material loss allowance.**
18. **Leftover inventory allowance.**
19. **Gross weight per case.**
20. **Freight cost.**

Editor's Note

Mr. Pettibone's review of this "deal" project emphasizes an important point: Making use of standard components as far as possible. While special equipment was built for this particular operation, the project started with existing machines and various standard components and proceeded from there. Another significant point is the degree of coordination such projects require: The check list for cost estimates plus the tabulation of people involved (appearing elsewhere in this article) underscore this.

N. C. Kirsch is a graduate of Rutgers University and of the University of Illinois with an M.S. degree from the latter. Associated with Schering Corporation since 1942, he has held positions covering research, development, production, sterile products, sterility and toxicity testing, and microbiological research. Prior to attaining his present position, he was supervisor of sterile production and acting manager of Schering's pharmaceutical development department. Mr. Kirsch is a member of American Chemical Society, American Pharmaceutical Association, Society of American Bacteriologists, Phi Sigma, Chemists Club of New York, American Association for the Advancement of Science, Royal Society of Health, and the American Public Health Association.

Developing facilities for sterile products packaging

By N. C. Kirsch,
Manager,
Sterile Products Department,
Schering Corporation,
Union, New Jersey

Preparations for the packaging of sterile products take place under the most exacting of conditions. Mr. Kirsch (whose company starts such preparations "from the ground up" by providing a separate building for sterile packaging) reviews the structural and operational factors of the primary functions and auxiliary services of a sterile packaging facility. His discussion is, in effect, a definitive summary of what it takes to package under sterile conditions.

The successful packaging of sterile products depends on providing an atmosphere and environment as free from microorganisms and other sources of contamination as we can possibly attain. Doing this on a limited scale is quite simple; real difficulties confront those seeking to attain such packaging on a production basis--such as 3,000 to 4,000 units an hour. The decision of the management of Schering Corporation to provide a separate building for sterile packaging gave us a unique opportunity to plan and install a sterile operation from the ground up.

Get latest methods. Our starting point was to plan an ideal situation, the theoretically correct conditions for sterile packaging. We reviewed the pertinent literature and discussed our problems with others in the pharmaceutical field. A survey team type of approach enabled us to check our plans and ideas against the practices and thinking of other companies in our field. As a result, what we have represents a blending of all available current ideas in aseptic handling, geared to the scale of operations we maintain. (See Fig. 1)

Sterile packaging depends on keeping the environment, air, walls, physical surroundings, and the people under rigid control. Air conditioning, cleaning, and filtering are vital. We use not only the Precipitron electro-static filter, but also a Cambridge ultra-filter. We realize that control of the air represents a big problem.

Since we have a dual system, the filters last longer; they are not carrying the entire load. We think a potential increase in operational quality and the elimination of some shut-down time helps offset the increased cost of such an installation. At the same time, we recognize that there is very little fixed, scientific evidence on which to base conclusions. A great deal depends on trial and error.

Control Traffic Flow

Planning for the control of people in the sterile operation, we laid out our building so that the flow of traffic is a straight line with two bends. Material enters at the nonsterile side and passes through various stages, beginning with the de-pack area. Here the packaging materials are washed in a dust-free area and then are sterilized. (See Figs. 2 and 3)

The work and facilities are designed to insure a minimum of human traffic through the plant area. There is a sterile corridor that serves the compounding and filling operations. We have a nonsterile, but clean, manufacturing area in the center. To reduce movement of people we have facilities to make bulk solutions in a nonsterile area.

Use of air pressure. These solutions go through a wall opening by means of an air-lock system. The sterile filling and sterile compounding areas are under the highest pressure in the whole building. This is a positive pressure. The next highest pressure is maintained in our dust-free washing section.

We keep these areas under pressure to prevent any source or object of contamination from entering. For example, at the various wall apertures leading out of the sterile filling room, we provide an air movement that feels like an elec-

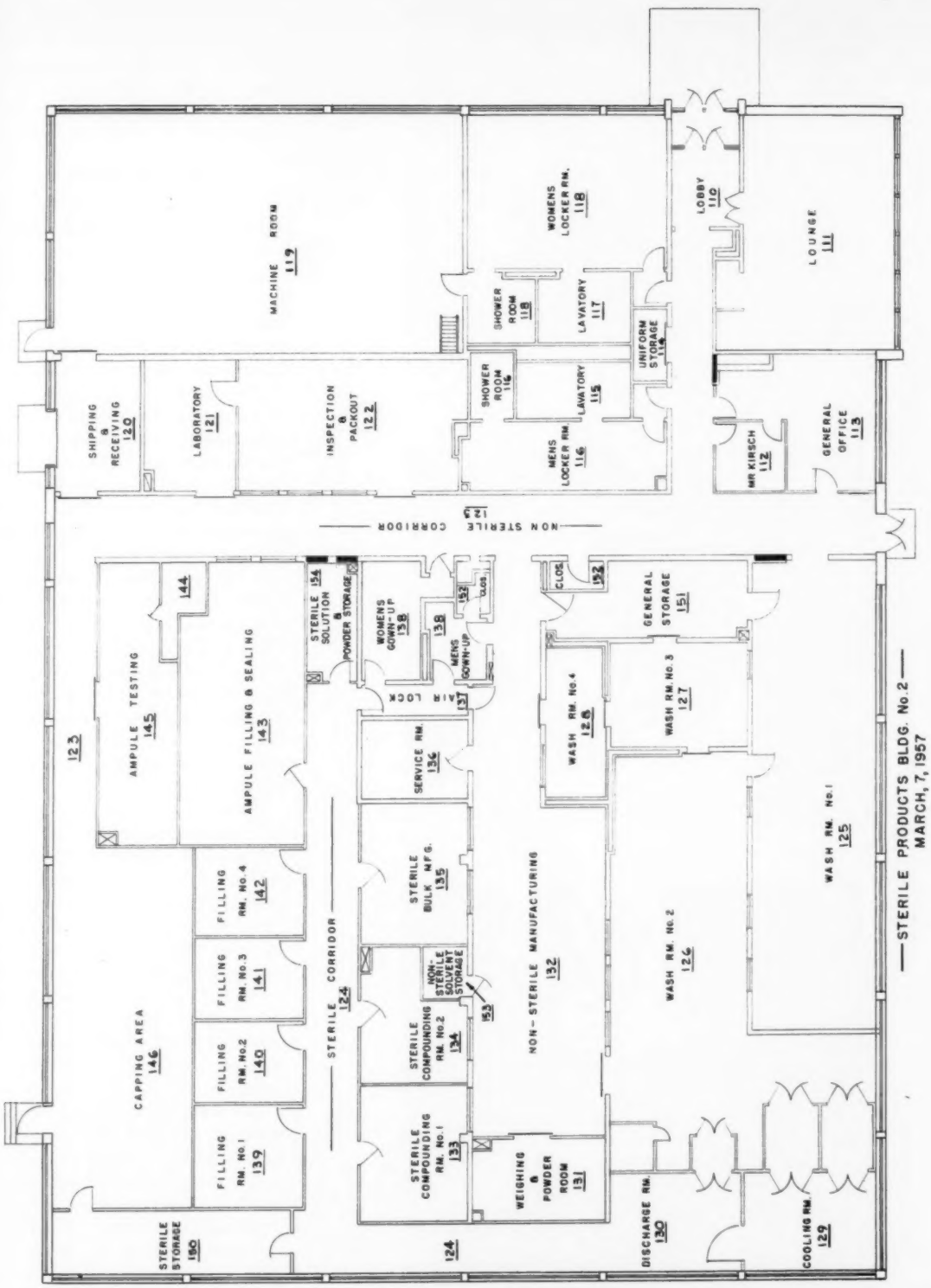


Fig. 1. Key features of layout of sterile products department building include adequate provision for traffic flow and arrangement of rooms so that sterile rooms are separated from non-sterile facilities and operations. Note that the flow of traffic involves basically a straight line with two bends. Use of double doors at critical locations provides air locks; one door closes before another opens. De-pack operations take place in washroom No. 1. From this point containers and materials move through flow of operation. L-shaped sterile corridor (124) serves sterile facilities. Non-sterile corridor (123) serves entire building.

Fig. 2. Incoming packaging materials are washed in a dust-free area and then are sterilized. Supplies of containers are not washed in advance. Crews only wash what they need for a particular operation, so that no reserves accumulate.

Fig. 3. Because prolonged storage leads to possibility of contamination, the plant does not hold washed-up containers in advance of use. After washing what is needed for a run, crews return excess supplies to warehouse—outside sterile building.

Fig. 4. Sterile filling and compounding areas are kept under positive pressure. This prevents sources or objects of contamination from entering. Air movement (like that of electric fan) blows out through wall openings, so nothing can blow in.

tric fan blowing out through the wall openings. (See Fig. 4) Since the air is blowing out under pressure, foreign particles, items of contamination, and other such things, cannot enter.

No Storage Areas

Our building is unique in that it has no storage facilities. We do not store materials in the building. Instead, all items such as bottles, come directly from the warehouse as required. Once bottles reach the sterile building, the crew members wash what they need for a particular operation. Any excess is returned to the warehouse.

Similarly, we do not hold sterilized material on hand. Our planned lack of storage and our handling procedures are geared to eliminate the possibility of washing up and holding containers in advance of use. Prolonged storage leads to possibility of contamination. We also wanted to keep the size of the building down because of the high costs involved in a structure geared to sterile packaging. It is not economical to use a sterile building for the storage of materials that just as well can stay in an ordinary warehouse area.

Packages move out when sealed. Likewise, once the ampules, vials, or other packages are filled and sealed, the sterile packaging operation is complete. Subsequent packaging such as labeling and cartoning takes place in another building. Since these packages are effectively sealed when they leave our sterile filling area, they may be transferred to a detention area in another building to await a Q. C. release.

We reiterate: It would be prohibitively expensive to provide a sterile building large enough to house these additional operations. Further, it would be unnecessary to do so because once the containers are sealed, it is no longer necessary to keep them under sterile conditions.

At the same time, cognizant of the growth of our business, we have designed our building with

expansion and production flexibility in mind. There is space for expansion in the various rooms and the corridors are of sufficient width to accommodate future requirements.

Service Facilities

What we have provided is virtually a building within a building. In other words, we have a two-story building with the lower or first floor as the production area. The top or roof of the first floor is the bottom or floor of the second, although it does not have the usual two-story construction.

We have installed all duct work, process piping, and other service facilities so they are accessible from the second floor. As a result, the first floor is left intact and all servicing may take place from the second (or upper) floor.

A vital adjunct of sterile packaging is a suitable water supply. In fact water presents more problems than air. To meet our specific needs, we maintain a complete water treating plant in our sterile building. We need water that is as close as possible to absolute chemical, microbiological, and physical purity—and this must be available in large quantities.

Use separate water systems. For washing and compounding we have two completely separate, constantly circulating systems of water. The first of these is a deionized water system. We use stainless steel piping throughout. The deionized water is constantly passing through high intensity, ultra-violet sterilization equipment. The second water system is a complete circulating loop of distilling water circulated at 90°C. This distilled water is made by distilling the deionized water. At the outlet areas we have heat exchangers to cool the water down to usable temperatures.

This problem illustrates the tremendous amount of detail one encounters in getting together the components of such a system. For example, we had to guard against water of such an elevated temperature being discharged at an or-

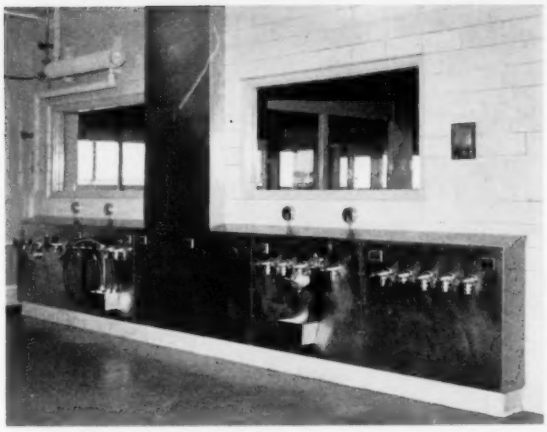


Fig. 5. Wall openings equipped with gasketed plugs permit transfer of fluid products. These openings function like small air locks. Hoses and lines may be used without exposing products to contamination. Sterile items are protected enroute to filling.

Fig. 6. Careful inspections of products take place at various stages of the building operation. Important feature of sterile packaging operation is to provide careful scheduling and coordinating of product and material movement during operations.

Fig. 7. Emphasizing proper coordination of packaging line details, Schering uses its own specially-designed trays for handling vials. It has seamless, drawn trays of its own design; their use prevents tipping of vials. Note inspection work in progress.

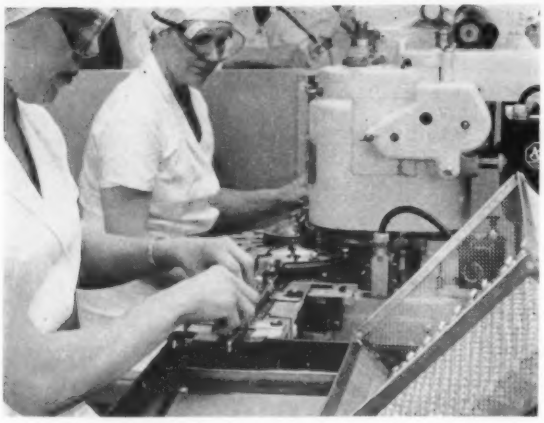


Fig. 8. Along with adequate identification, proper coding of containers is important feature of plant operation. Capping area is located outside filling rooms seen through glass in background. (See Fig. 1 for room and area locations.)

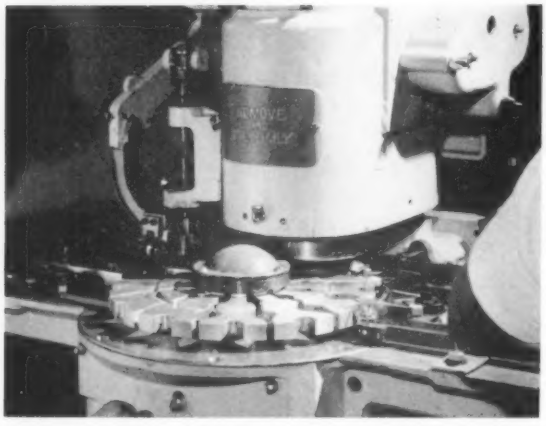


Fig. 9. Schering's own coding device puts batch number on each seal. This device is attached to the vial and bottle sealing units to put application on top of each seal—for protection against counterfeiting. It makes a marking hand "copying" could not duplicate.

dinary tap. In other words, we faced the possibility of someone turning on a faucet and being scalded by the 90°C. water.

Moving People And Product

We had to provide gown-up facilities for our sterile packaging line personnel. These include not only suitable physical layouts, but also operational procedures. Our workers follow a definite pattern as they come in, sit on benches, put on their sterile boots, gowns, head covers—and then swing their feet over the bench to walk to the wash-up areas. Leaving this point, they go through air-lock chambers before going directly into the sterile areas. In this way, one door is closed before another is opened and the possibility of contamination is reduced.

For the transfer of fluid products we have wall openings with gasketed plugs. (See Fig. 5) These are essentially small air-locks. This permits us to use hoses and lines through these wall openings without exposing the products to contamination. Such openings are very helpful for the delivery of fluid products to the sterile areas prior to packaging.

Transfer sterile products only. Incidentally, only fluid products go into the compounding rooms. We do not take in non-sterile solids. Instead, we render such solids sterile by dissolving them before transferring them. They are then isolated aseptically in the sterile area as dry powders. In other words, we either deliver such items sterile or render them sterile in the process of delivering them.

Stainless steel tanks serve as sterile containers for sterile products. We hold these in sterile storage areas until quality control releases the product for actual packaging in the sterile filling rooms. We use standard filling equipment made by Popper and Sons and have a hood on each of the filling machines and conveying facilities.

Cleaning Packaging Machinery

Our packaging line techniques emphasize washing down the equipment with disinfectant prior to use. The parts of the machinery which containers or solutions touch are pulled apart at the end of each day and are washed and sterilized, using an autoclave, if possible. If this cannot be done, they are flamed or otherwise disinfected. We insist that pumps, transfer tubes, and anything which affects or contacts the inside of a sterile vial be given a definite terminal sterilization. We heat-sterilize by use of autoclaves or ovens wherever we can.

When to make aseptic conditions. Following the packaging line clean-up, the parts are reassembled, (except the filling pump, which does not go into place until the next morning). In the morning, our crews make the aseptic connections, as then the activity of the building is at its lowest level. This is just before the day shift comes to work. We find these aseptic connections can best be done at that time and can be done without hardship to the people or processing involved.

At the beginning of our planning stage, we decided it should be possible to produce aseptically-filled materials as well as those which can be heat sterilized (both under the same system) economically. It

(Continued on Page 78)

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BAND-AID* Stars 'n Strips have a special need . . . an economical packaging material for adhesive bandages that must prevent bacteria penetration and withstand high temperatures in autoclaves. The answer was a special heat-resistant Riegel glassine known as "sterilizable glassine." In this case, too, *protection* by Riegel means extra benefits . . . flexible packaging materials that are:

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Frank C. Campins is a graduate of Massachusetts Institute of Technology, where he received a doctor of science degree in chemical engineering. President of Polymer Industries, Inc., he is a member of Technical Association of the Pulp and Paper Industry and of American Institute of Chemical Engineers. He is chairman of the education committee of Packaging Institute.

Daniel Siegel is a graduate of Brown University with a B.S. degree in chemistry. He is a member of American Chemical Society.

Analyzing the adhesion operation

By Frank C. Campins,
President,
and Daniel Siegel,
Product Manager,
Polymer Industries, Inc.,
Springdale, Connecticut

Causes of adhesion difficulties are often elusive. In tracking them down, it is necessary to trace back through a long heritage of accumulated events. Applying the concept of "pedigree" to the diagnosis of these problems, Dr. Campins and Mr. Siegel stress the value of a systematic habit of thought. They recommend the pedigree concept as a basis for understanding the dynamics of adhesion and urge the reconstructing of such a pedigree of all prior events comprising such an industrial pedigree.

Although the art of sticking various materials together by means of a third substance known as an adhesive is not new, it is still an art and its fundamentals are not yet well understood. Furthermore, with the steady advent of new packaging materials and new adhesives, the art of adhesion is growing increasingly diversified though greatly improved; but it is also growing more complex.

Part of the increase in complexity arises from the response of the packaging machinery manufacturer to the need for higher speeds of productivity. These rise in turn, from the incessant demands of organized labor for ever-increasing wage rates. Higher speeds inevitably reduce the time in which a satisfactory bond may be formed.

Today the speed at which the sequence of events takes place is so rapid that physical measurements of the several events are well-nigh impossible. Indeed, the events themselves that lead to the formation of a bond cannot be easily identified visually nor easily studied. A successful adhesion operation in packaging involves a sequence of very rapid movements, sometimes as rapid as 200 a minute, which means that each of the events in sequence must be performed properly in a trifle less than one-third of a second. And each must be done, hour after hour, at this rate.

A Dynamic Situation

Physical measurements of the things that take place during the formation of a good bond at this high speed, though not impossible in every case, are very difficult; but perhaps actual measurements are not necessary. For there are other ways of ascertaining what is going on in a complex operation. We can apply logic and mathematics to the problem and can arrive at conclusions that usually are more nearly the truth than we can reach by attempts to measure rapidly moving events by physical methods.

Nothing at rest. But it must be kept in mind that adhesion, as we know it in the packaging field (in which we also include the production of laminates for packaging purposes), is **dynamic**—not **static.** Nothing is at rest during the process of forming a bond. When events have come to rest, or are in equilibrium, it is too late to do anything about the adhesion operation. Either a satisfactory bond has been formed, or it is unsatisfactory.

Therefore, any concepts we may hold about what goes on during adhesion must be dynamic concepts—an understanding of what goes on during rapid change rather than at rest. And concepts we must have, if we are to conjecture correctly about events that we cannot see, or that move so rapidly that a stroboscope would be required to stop their motion.

Basic Need: A Theory

A workable theory of the adhesion process and all that goes on during its operation is a basic requirement for understanding what we cannot see or measure directly. It is well known that successful

investigations require a theory. Most research that leads to important results involves the testing of a theory. If experiment or experience denies the truth of the theory, then we face two possibilities: (a) Our experiments were improperly devised or our experiences were improperly measured or recorded; (b) our theory is no good and must be discarded.

Use theory—if supported. If, however, the results of experience and experiment support the validity of the theory, then the theory can be used as a basis for successful prediction of the outcome of further tests, or successful diagnosis of troubles.

In this article we are presenting four case histories of adhesion troubles that will illustrate the application of the theory of the pedigree (or the pedigree concept) to diagnosis of the cause of a problem. The first two case histories will be simple: The remainder will be increasingly complex.

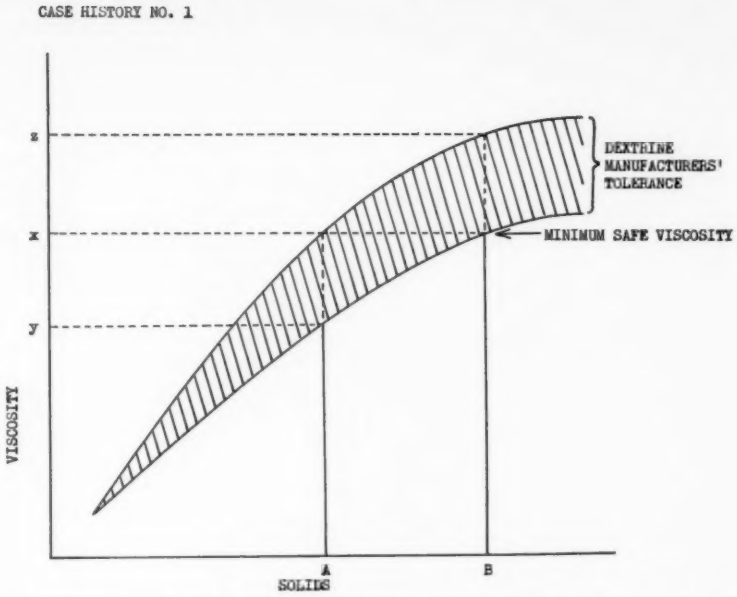

Fig. 1. By controlling the solids content to point A, the user obtained a viscosity range from x to y on the graph. To insure a viscosity no lower than x, he must control the solids content to point B, thus obtaining a viscosity range from z to x. Actually it was accomplished by cutting down the water in each batch.

The Pedigree Concept

What we are calling the pedigree concept (or theory) has been given that name because it is the only common word in the English language that comes even close to describing "the facts of life" in adhesion. Other terms include family tree, genealogy, lineage, progression—even concatenation. If the last word were not so rare, concatenation or the concatenate concept might be the more appropriate to describe the theory. Webster defines concatenation as "a series or order of things depending on each other, as if linked in a chain." Pedigree refers to the lineage of living things in contrast to inanimate things, but because it is a word that is generally understood, we prefer to use it in describing the theory of what goes on prior to and during adhesion.

How far back to go? In the pedigree concept of adhesion we include the succession of events, materials, substances, and treatments that take place prior to and during the formation of a bond. How far back into the history of a material that is to be adhered we should go is not easily defined. All we can say today is that it should be farther than you think.

If space permitted it would be profitable to embark on a philosophical discussion of causes, ultimate causes, for then we could understand better the difficulty of defining the starting point of the pedigree of the events prior to an adhesion operation that have an important bearing on its outcome. For the present we must omit such discussion and ask you to believe that many events that occur long before two materials are brought together in an effort to cause them to adhere may or will have an influence on the formation of a successful bond. The case histories will show you examples of how and why it is true.

Background Of The Concept

At this point, however, it is necessary to develop an understanding of the pedigree concept. Take the bonding of paper to itself as a case in point. A paper like newsprint that is devoid of internal sizing or of coating can be stuck together easily by a starch adhesive.

As various treatments are given to a paper the surface becomes changed and often is less pervious to moisture or other solvents, and thereby becomes more difficult to adhere by an adhesive. Not only are different sizings or coatings applied to the paper at various stages in its manufacture, but also different treatments may be applied, such as moistening, drying to an extreme degree, embossing, calendering, supercalendering, etc.

Important prior events. All of these events may have an important bearing on the ability of the adhesive to form a good bond in the required time and all of them have probably taken place long before the paper came to the place where it is to be stuck to something in a packaging operation. The person who is controlling the adhesion operation may be wholly unaware of all that has gone before, yet the prior history of the paper, i.e., its pedigree, may have an important influence on the success of the adhesion operation being carried out.

(Turn Page)

Fig. 2. Trans-illumination of paper-backed foil showing where corrosion had perforated the metal—Case history No. 2.

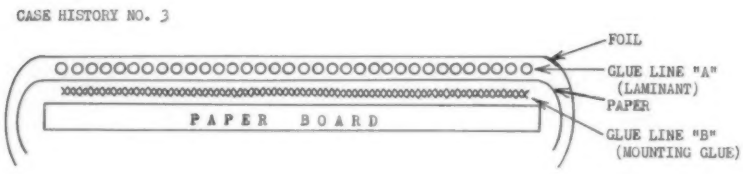

Fig. 3. Showing the mechanism by which humectants in glue line B passed through the paper and glue line A to corrode the foil.

Tracing Back Components

Take the case of a bottler who applies paper labels to about 400,000 bottles a day in a single plant. Everything runs smoothly for a time, then labels begin to come loose after a day or two in the warehouse or in shipment. What is the cause? Is it the glue? The glue turns out to be all from the same batch. Is it the labels? They are all from the same lithographer and from the same lot

After a lengthy and costly investigation it may develop that the paper does not all have the same pedigree. Something that was done to part of the paper long before it came into the possession of the lithographer had given it properties that differ slightly from the properties of the other paper used in this lot of labels. Or, it is possible that part of the label stock contains considerably more moisture than the other part. When a labeler is operating at upwards of 150 a minute such a situation as either of these possibilities can be very aggravating.

Leading up to pedigree concept. The foregoing hypothetical incident is only one of many typical sorts of adhesion problems that have led to the development of the pedigree concept of the basis of adhesion problems. It should be remembered, however, that the history of one of the materials to be adhered, such as paper in the preceding instance, is not the only possible source of trouble.

It might be that the bottles had been coated with a silicone, or that they were out of round because of mold wear, or that they were below the dew point in the labeling department; or it might be that the labeling machine was not in a state of proper maintenance, or it may have been out of adjustment. Yet all these prior events are in the pedigree or concatenation of events that precede the actual attempt to adhere.

How Far Back To Go?

When you are talking about the technical pedigree, or concatenation, you are never talking about anything except some event in or near the middle of the sequence. There is a reason for this assertion. In packaging, or converting materials for packaging purposes, it is common experience that practically everything used comes from some other source of supply. (And, if one wished to be cynical about it, he might add that the meager knowledge of the industrial pedigree is further complicated by an appropriate degree of secrecy about each source.)

There are, nevertheless, short pedigrees and long pedigrees. The short ones are termed proximate pedigrees, for the history does not extend very far back. The long ones are termed remote pedigrees, and in them the history extends back both in time and in complexity Sometimes the time-factor is short, yet the difficulty of discovering the technical background is so great as to justify including this sort of a pedigree in the remote group.

Looking at some case histories. Here are given a few case histories of the pedigrees of adhesion headaches. The first two are fairly short and simple, so simple that many would be tempted to ignore the pedigree aspect. Yet all the case histories fall into a pattern and exemplify varying degrees of problems that have a historical background.

1. Defective Seams On Multiwall Sacks

This headache occurred in the plant of the manufacturer of multi-

(Continued on Page 49)

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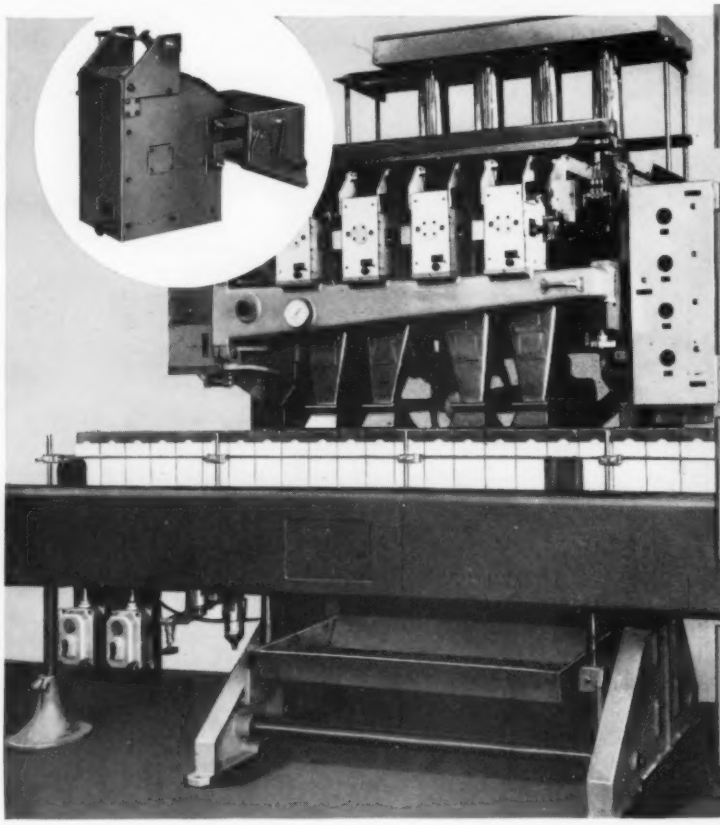

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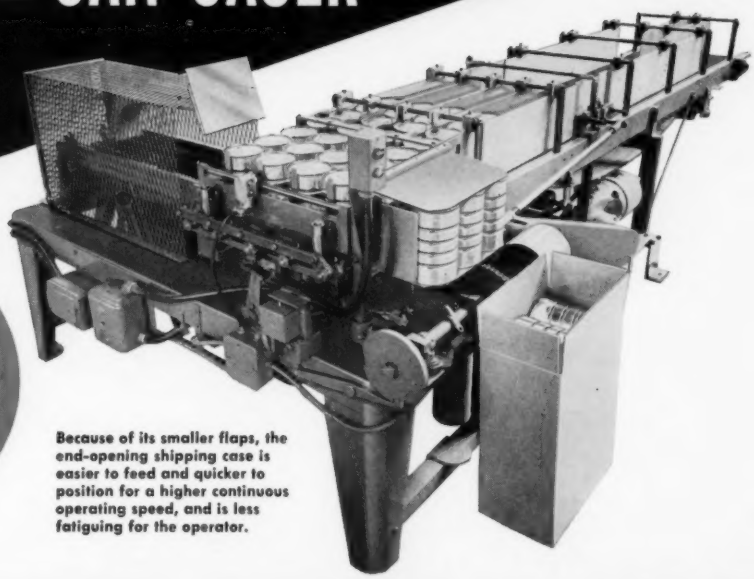

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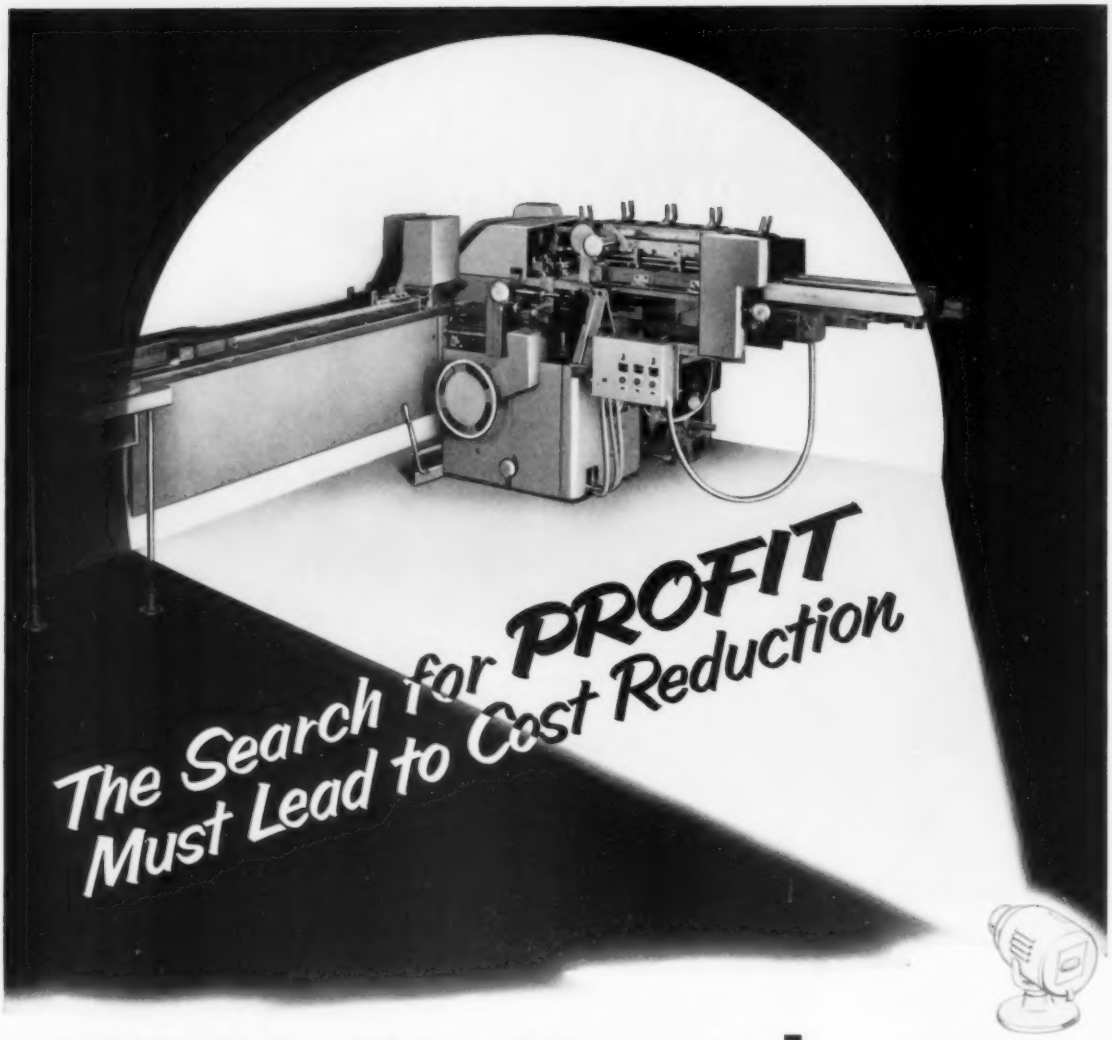

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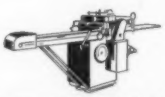
*Vitafilm — a Polyvinyl chloride — T.M. The Goodyear Tire & Rubber Co., Akron, Ohio.



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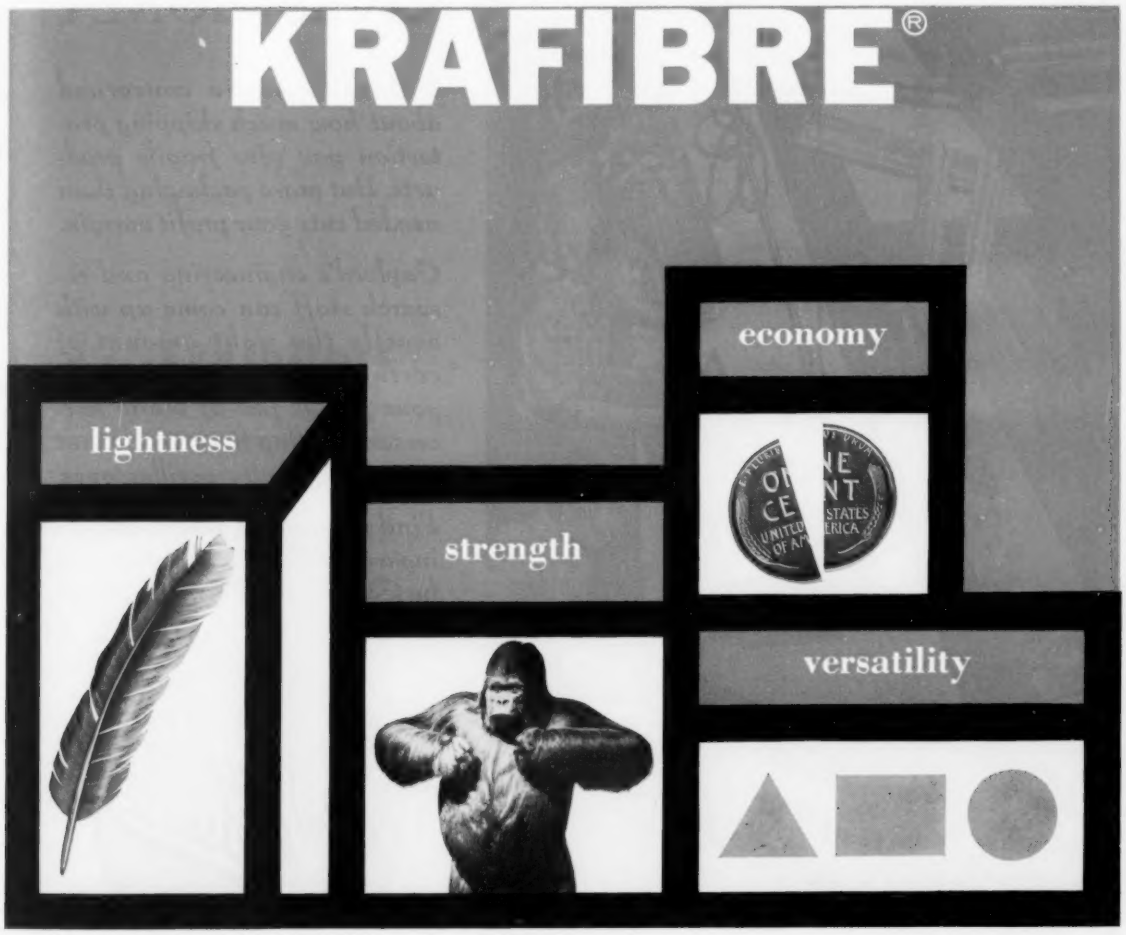

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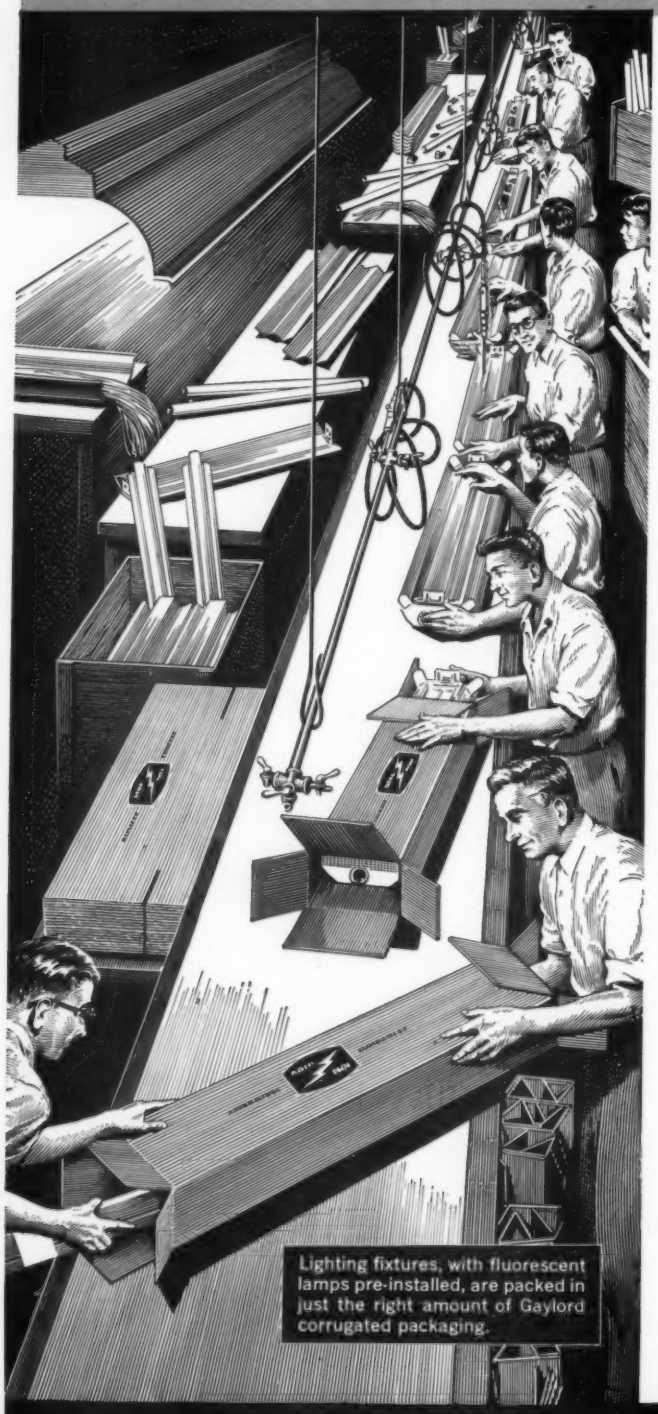

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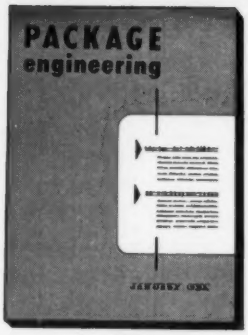

Exhibitors

THE PACKAGING MACHINERY AND MATERIALS EXPOSITION

EXHIBITOR	BOOTH	HOTEL
A-B-C Packaging Machine Corporation	617	Crillon
A & M Tool & Die Co.	638	Shelburne
Algene Marking Equipment Co.	614	
Aluminum Company of America	202	Shelburne
American Viscose Corporation	321	Dennis
Amsco Packaging Machinery, Inc.	609	Madison
Anderson Brothers Manufacturing Co.	730	Claridge
The Arabol Manufacturing Co.	907	Claridge
Arenco Machine Co., Inc.	906	Shelburne
Armour & Co., Adhesive Div.	129	Traymore
Avery Adhesive Label Corp.	903	
Avion Div., ACF Industries, Inc.	130	
Victor Balata Textile Belting Co.	725	
Barkley & Dexter, Inc.	210	Chalfonte-Haddon Hall
Bartelt Engineering Co.	533	Claridge
Battle Creek Packaging Machines, Inc.	406	
The Bell Machine Co.	742	
Better Packages, Inc.	621	Dennis
Brown Filling Machine Co., Inc.	114	Claridge
Burt Machine Co.	622	
John-Burton Machine Corporation	629	Dennis
Butler Automatic Machine Co.	902	
Cameron Machine Co.	430, 434	
Canadian Packaging	705	Shelburne
Chain Belt Co.	534	Chalfonte-Haddon Hall
Chase Equipment Corporation	733	Shelburne
Chisholm-Ryder Co. of Pennsylvania	213	
C.I.T. Corporation	909	
The Clark-Aiken Company	125	Claridge
Clybourn Machine Corp.	530	Dennis
Arthur Colton Co.	"D"	
Comet Industries	126	Dennis
Conapac Corporation	302	Shelburne
Consolidated Packaging Machinery Corp.	"B"	Dennis
Container Equipment Corporation	309	Dennis
Continental Can Co.	513	
Crompton & Knowles Packaging Corporation	509	
Crown Zellerbach, Western Waxide Div.	"F"	Chalfonte-Haddon Hall
Delta Engineering Corporation	133	
Dennison Manufacturing Co.	118, 217	Marlborough-Blenheim
Derby Sealers, Inc.	803	Shelburne
The Dobeckmun Company	418	Dennis
Doughboy Industries, Inc.	"E"	Ritz-Carlton
John Dusenbery Co., Inc.	238	
E. I. DuPont de Nemours & Co.	522	
Economic Machinery Co.	405	Chalfonte-Haddon Hall
Electronic Machine Parts, Inc.	726	Traymore
Elgin Manufacturing Co.	"C"	Dennis
Eriez Manufacturing Co.	229	Shelburne
The Exact Weight Scale Co.	713	Ambassador
J. L. Ferguson Co.	709	Claridge
General Electric Co.	802	
General Packaging Equipment Co.	734	Marlborough-Blenheim
Geveke & Co., Inc.	425	Chalfonte-Haddon Hall
Gisholt Machine Co.	737	Shelburne
Adolph Gottscho, Inc.	118, 217	Castle Roc
Griffin-Rutgers, Inc.	209	
Hayssen Manufacturing Co.	214	
H. H. Heinrich Co.	410	
Helix Machine Co., Inc.	326	Chalfonte-Haddon Hall
Hi Speed Checkweigher Co., Inc.	134	Dennis
Allen Hollander Co., Inc.	234	Shelburne
Hope Machine Co.	117	Chalfonte-Haddon Hall
Horix Manufacturing Co.	618	
Hudson-Sharp Machine Co.	601-02-05-06-09	
International Filling Machine Corp.	422	Dennis
International Staple & Machine Co.	717	Claridge
Island Equipment Corp.	"A"	Ambassador
Ivers-Lee Co.	811	Shelburne
R. A. Jones & Co., Inc.	414	Claridge
Kaiser Aluminum & Chemical Sales Corp.	426	Dennis
Kidder Press Co., Inc.	225	Shelburne
Karl Kiefer Machine Co.	701	Dennis
Kingsbury & Davis Machine Co.	601-02-05-06-09	
M. D. Knowlton Company	502	Chalfonte-Haddon Hall
The KVP Company	807	Traymore
Labelette Company	810	Chalfonte-Haddon Hall
The Lakso Co., Inc.	702	Shelburne
Leiman Bros.	330	
Link-Belt Company	206	
Lynch Corporation	401	
Machinery Service Co., Inc.	318	Claridge
MRM Co., Inc.	510	Shelburne
Maquinaria Envasadora Cubana, S.A.	113	
Markem Machine Co.	525	Dennis
Marsh Stencil Machine Co.	237	Dennis
Mercury Heat Sealing Equipment Co.	221	Ritz, President
Merrill Machinery Sales Co.	718	Shelburne
Miller Wrapping & Sealing Machine Co.	138, 601	Madison

Continued on following page

EXHIBITOR	BOOTH	HOTEL
Milprint, Inc.	301	Claridge
Modern Packaging	322	Shelburne
Kenneth J. Moore and Co.	738	
National Equipment Corp.	429	Chalfonte-Haddon Hall
National Flexible Packaging Assn.	908	
New Jersey Machine Corp.	334	Dennis
Olin Mathieson Chemical Corp., Film Division	Registration area	Shelburne
Oliver Machinery Co.	305	Shelburne
Package Engineering	904	Shelburne
Package Machinery Co.	314, 413	Dennis
Packaging Parade	521	Shelburne
Packmaster	222	Golden Gate Motel
Pak-Rapid, Inc.	809	
Paper Converting Machine Co.	517	Dennis
Paper Machinery & Research, Inc.	526	Shelburne
Peters Machinery Company	501	Dennis
Pneumatic Scale Corp., Ltd.	505	Traymore
Popper & Sons, Inc.	625	
Potdevin Machine Co.	310	Dennis
Pyroxylin Products, Inc.	230	Shelburne
F. B. Redington Co.	514, 518	
Resina Automatic Machine Co., Inc.	613	Shelburne
Reynolds Metals Co.	313	
Riegel Paper Corp.	806	Shelburne
Scandia Manufacturing Co.	409	Chalfonte-Haddon Hall
G. T. Schjeldahl Co.	101	Claridge
Schooler Manufacturing Co.	633, 637	
Schroeder Machine Corp.	325, 329	Chalfonte-Haddon Hall
Shopsin Paper Co.	626	Ambassador
The Simco Company	529	Shelburne
Simplex Packaging Machinery, Inc.	605	Chalfonte-Haddon Hall
Standard-Knapp, Div. Emhart Mfg. Co.	306	Chalfonte-Haddon Hall
Stanford Engineering Co.	201, 205	Ambassador
E. G. Staude Mfg. Co.	102	Shelburne
Stein, Hall & Co., Inc.	722	Ritz-Carlton
Stokes & Smith Co.	601-02-05-06	Chalfonte-Haddon Hall
Swift & Co., Adhesive Products Dept.	417, 421	Shelburne
Syntron Company	238	
Trescott Company	630	Carole Apts.
Triangle Package Machinery Co.	317	Chalfonte-Haddon Hall
Union Bag-Camp Paper Corp.	610	Shelburne
United Shoe Machinery Corp.	218	Chalfonte-Haddon Hall
U. S. Automatic Box Machinery Co.	433	Chalfonte-Haddon Hall
U. S. Bottlers Machinery Co.	333	Shelburne
Vertrod Corporation	812	Shelburne
Walton Laboratories, Inc.	121	
Waxed Paper Merchandising Council, Inc.	729	
Warner Electric Brake & Clutch Co.	506	
H. G. Weber & Co., Inc.	801	Shelburne
Weigh Right Automatic Scale Co.	226	Shelburne
Wolverine Paper Converting Machine Co.	634	Ambassador
The Woodman Co., Inc.	804	Chalfonte-Haddon Hall
Wrap-Ade Machine Co., Inc.	633, 637	Chalfonte-Haddon Hall
Wright Machinery Company	402	

HOURS OF THE

Exposition

Tuesday, March 25th: 12 noon to 5:30 p.m.

Wednesday, March 26th: 9:00 a.m. to 5:30 p.m.

Thursday, March 27th: 9:00 a.m. to 5:30 p.m.

Friday, March 28th: 9:00 a.m. to 1:00 p.m.

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TAKE THIS WITH YOU TO ATLANTIC CITY

PI's Special Technical Session Program

Packaging Institute is holding three half-days of technical sessions at the Packaging Machinery & Materials Exposition of 1958 in Atlantic City's Convention Hall. The sessions will begin at 2:00 p.m. on Monday, March 24th, one day before the Exposition opens, and will continue on Tuesday, March 25th and Wednesday, March 26th, from 9:00 a.m. until noon each day.

Monday, March 24th:

2:00 p.m. Latest developments in packaging materials. John Cowan, National Flexible Packaging Association, moderator.

Adhesion promoters for polyethylene, Sam Gold, National Starch Products, Inc.

Automatic packaging with polyethylene, Dr. L. E. Simerl, Olin Mathieson Chemical Corp., panel moderator; today's high speeds and polyethylene, Charles Fields, Shellmar-Betner Div., Continental Can Co.; machine developments for packaging in polyethylene film; present problems and accomplishments; future goals, by Henry Knoechel, Hayssen Mfg. Co.; opening methods for polyethylene wrapped packages; peelable seals; perforated films; tear tapes; by V. M. Norwood, Bakelite Co., Div. of Union Carbide Corp.

Automatic packaging with polyethylene at high speed, Ross A. Easter, Pillsbury Mills, Inc.

Latest developments in the plastic extrusion field, Bruce Miller, Ludlow Papers Co.

Economics and greater efficiency through carton standardization, W. L. Romney, Procter & Gamble Co., panel moderator; problems of making cartons to the close tolerances and high standards demanded by today's higher speeds, A. William Chapman, The Lord Baltimore Press; problems of the machinery manufacturer introduced by today's high speeds, Wickliffe Jones, R. A. Jones & Co., Inc.; carton standardization and simplification from the user's point-of-view, Howard W. J. Baines, E. R. Squibb & Sons.

Tuesday, March 25th:

9:00 a.m. Opening address, speaker to be announced.

The structure of performance, Dr. Frank C. Campins, Polymer Industries, Inc.

Meet the packaging press: Lloyd Stouffer, *Modern Packaging*, Chris FitzGerald, *Packaging Parade*, and R. Bruce Holmgren, PACKAGE ENGINEERING.

Question and answer period, moderated by A. Douglas Murphy, Esso Standard Oil Co., and William B. Bronander, Jr., Scandia Mfg. Co.

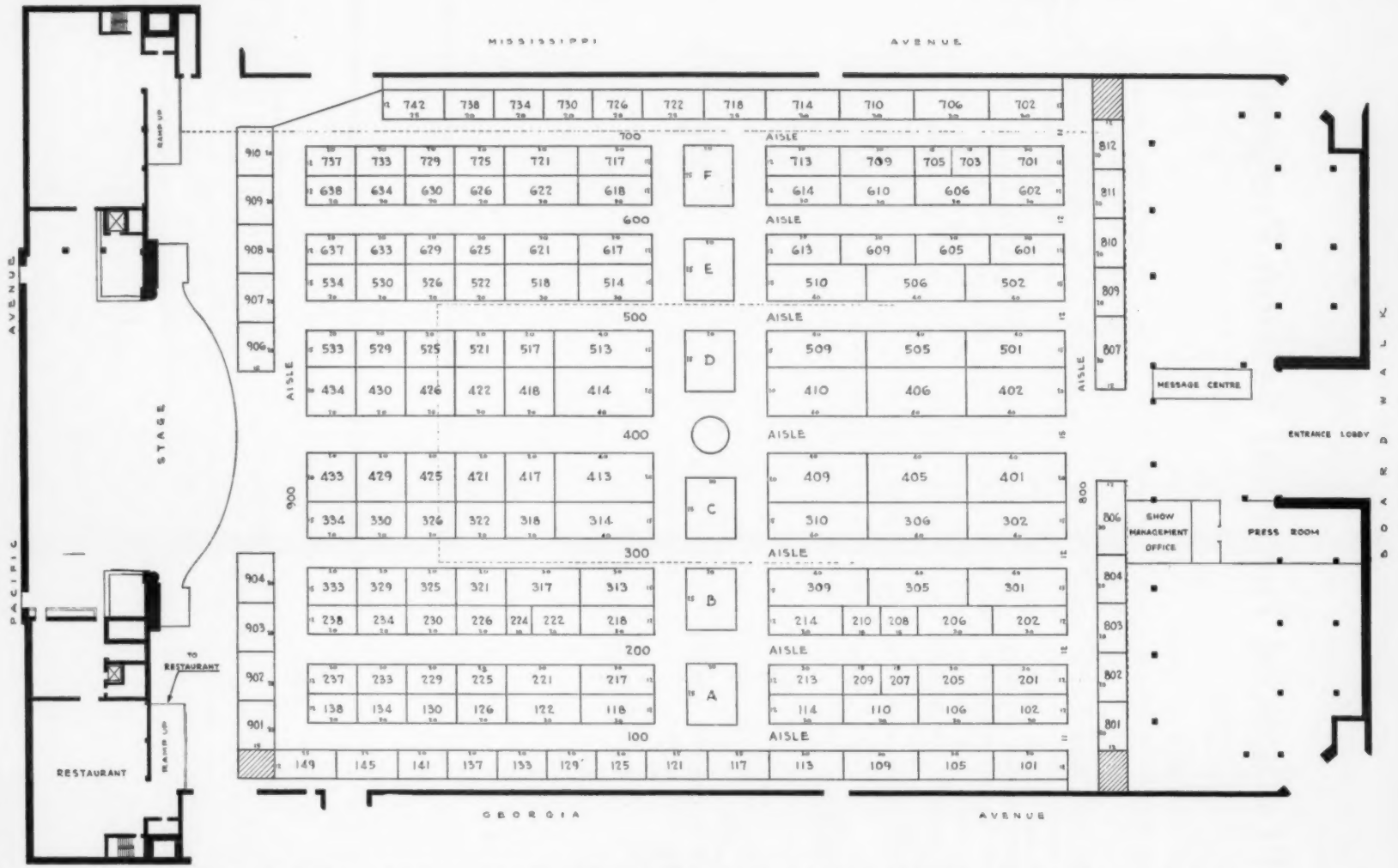
Wednesday, March 26th:

9:00 a.m. Keynote address: Packaging machinery . . . the desires of its buyers and of its suppliers, A. R. Schaefer, New Jersey Machine Corp.

The new machine from determination of your needs to placing of the order, Lowell Ledgett, Colgate-Palmolive Co., panel moderator; defining and developing your need for the machine, Edward Wixted, Schering Corp.; choosing the supplier of the machine you need, Fred Blumers, General Mills, Inc.; specifications, the common language of the order, L. A. Curtis, Package Machinery Co.

The new machine from the manufacturer's floor to your final acceptance and satisfaction, R. F. Miller, Kraft Foods Co., panel moderator; your machine properly tested in our plant, properly installed in yours, Charles Barr, F. B. Redington Co.; instruction of your personnel; obtaining satisfactory performance; and final acceptance, Edward White, Warner Lambert; what service we users need, Edward W. Love, Bristol-Myers Co.; what service we machinery suppliers can provide, Ira Gottscho, Adolph Gottscho, Inc.

Those attending the Packaging Machinery & Materials Exposition of 1958, as well as the special technical sessions conducted by Packaging Institute, should note that these technical sessions are indicative of the talent and experience available to Packaging Institute members on a year-round basis. Further, Packaging Institute's recently established Professional Membership program offers new opportunities to packaging specialists as individuals—including participation in PI's famed committees. Individuals and companies alike seeking more information about Packaging Institute should contact Charles A. Feld, Executive Director, Packaging Institute, 342 Madison Avenue, New York 17, New York. PI's telephone number is Murray Hill 7-8875.



Visitors touring the 60,000 square feet plus occupied by the exhibitors at PMME should remember that the special technical sessions conducted by Packaging Institute for the sponsors of the Exposition are held in Room B of this hall. Thus, the technical sessions and PMME's "action" exhibits are under the same roof and within easy distance of each other.

Packaging is more than "Skin Deep"!

PACKAGING PROBLEM:

Carnation Company, Los Angeles, is a producer of an "Instant Hot Cocoa Mix" which is used institutionally by operations such as soda fountains, restaurants, schools, hospitals, drive-ins, etc. Until recently, this product was packaged in a conventional pillow pouch produced by Western-Waxide. What Carnation desired was a package that would offer a convenience to the user; preferably speed his opening of the package. Close portion control was another requirement.

Increased Sales ... by Design!

SOLUTION:

Western-Waxide's Package Research and Development Laboratory went to work on the problem. It was already known that Crown Pouch 2508 was the proper material to protect the hygroscopic product. This material is 25# pouch paper laminated with 7# polyethylene to .00035" aluminum foil and coated on the inside (foil side) with 15# polyethylene. One of Western-Waxide's employees came up with the idea that made this the newest thing in flexible packaging. Why not put a tear string in the pouch? It was done, after considerable experimentation, by introducing a thread to the material during the final polyethylene operation. When the pouch is formed on the user's machinery, the string lies in the fold that is the unsealed side of the three seal fin pouch. The two ends of the tear string are sealed into the sides so that they will not pull loose when the pouch is opened. The user of the product simply tears up on the corner of the pouch and the string neatly cuts paper, foil and poly right across the top of the package.

(NOTE: In actual use it has been found that the C-Zip pouch may be formed, filled and sealed on the most critical machinery with no loss of speed. Other applications in addition to unit packaging of hygroscopics are under development. The C-Zip pouch is exclusive with Western-Waxide. Patents are applied for.)

For a demonstration, information and sample of the tear string C-Zip pouch, visit booth F at the Packaging Machinery & Materials Exposition, Atlantic City, March 25-28

CROWN ZELLERBACH **WESTERN-WAXIDE DIVISION**

Headquarters Office: 2101 Williams St., San Leandro, Calif. • Plants and Sales Service Offices in Principal Cities of the United States

Manufacturers and converters of plain and printed waxed paper • foil • foil laminates • polyethylene coated paper and polyfilm laminates • films • bags • pouches and other specialized flexible packaging materials (C-Zip: Trademark, Crown Zellerbach)

Yes, Swift's Highspeed Resin Adhesive can cut the bottlenecks of packaging closure or labeling. They're made to keep pace with today's production requirements.

Highspeed resin adhesives are available to meet the most specific use with paper, film, foil or board and are available in a variety of Swift-quality grades for labeling on metal or glass.

A trial on your own equipment is your best proof of performance. Ask your nearby Swift adhesive specialist for details. SWIFT & COMPANY, Adhesive Products Department, 4115 Packers Ave., Chicago 9, Illinois.

See us in Booth 417-421 at the PMMI Exposition, Atlantic City, March 25-28.

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103RD YEAR

To Serve Your Industry Better

WITH THESE ADHESIVE PRODUCTS • Resins and Rubbers in Emulsion or Solvent • Dry, Liquid and Flexible Animal Glues • Liquid Dextrin Adhesives

A-43

Analyzing the adhesion operation

(Continued from Page 36)

wall paper shipping sacks. The adhesive on the seams showed erratic failure when different lots of glue were used. While the examination of the defective seams showed there was glue on both surfaces, it was also evident that there was excessive penetration into the paper. This adhesive was prepared in the bag maker's plant by cooking up a dry dextrine blend. The blend of dextrines came from some other manufacturer.

Why viscosity variances? After a prolonged series of observations it was finally noted that the failure of adhesion occurred only when the viscosity of the batches fell below a certain value. The low-viscosity figures were not caused by carelessness in making up a cooked batch of the dextrine adhesive, for they were very accurately prepared. Evidently the differing viscosities were inherent in the dry dextrine blends, and were a part of the unknown pedigree of the adhesive. A glue manufacturer, or anyone else with a wide knowledge of glues, would make up the cooked batch to a definite viscosity specification. But, due to a failure of adequate communications, the instructions to the glue-user were on a weight-to-weight basis, and viscosity variations were entirely omitted or ignored.

Realizing the wide tolerances that were in the dry adhesive, it was possible to correct the unsatisfactory gluing operation by reducing the water-to-solids ratio when cooking up a batch. The reduction was made sufficiently drastic so that even the thinnest-cooking lot would still produce a safe working viscosity. (See Fig. 1.)

The complaint here may be traced back in its pedigree to an inadequate understanding, by the user of the glue, of the necessary manufacturing tolerances in producing the dextrines that were blended to make the adhesive base. It should be emphasized that the technical pedigree may be any sort of an event or practice which has an effect on the subsequent properties of the product in question. In this case, it was a wide limit of manufacturing tolerance that had to be discovered by study at the user's plant.

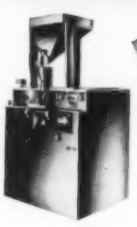
2. Corrosion Complaints Ascribed To The Adhesive

This is another simple or proximate pedigree case. It is related not to try to prove that the adhesive is never at fault, but to indicate that even with a short pedigree the problem may include some factors that may initially appear to be rather far-fetched. This incident took place in a foil-laminating plant where it had been complained that the adhesive was causing corrosion.

In tracing back the pedigree it was found that all the complaints actually came from one machine. All the other machines operating with the same aqueous adhesive

BFM

THE COMPLETE LINE OF PACKETING MACHINERY



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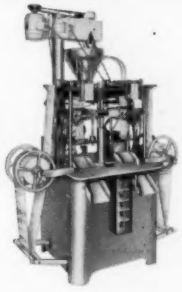
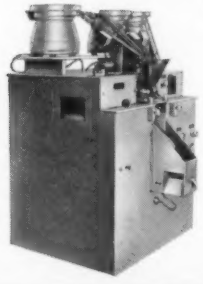
All Viscous, Semi-Viscous and Free-Flowing liquids



HARDWARE FORMAPAK

Nails, Screws, Bolts, Nuts, Lockwashers and similar items



The BFM Packeting Machine does the entire job automatically . . .

Counts or measures the product —
Forms the packet from a single roll of heat-sealing material —
Fills and seals the packet —
Imprints or codes each packet —
Registers pre-printed materials front and back by electric eye

BFM Automatic Packaging Since 1886

BROWN

FILLING MACHINE COMPANY, INC.

Division of Franklin Research Corporation

FITCHBURG, MASSACHUSETTS

Nature's packages are perfect for the job...how about yours?

Contrary to the opinion of some people and most squirrels, the acorn was not designed for the convenience of the bushy-tailed species. The lofty mission of this compact little capsule is solely to perpetuate the mighty oak family. Every detail of its design, from its bullet-nose shape to its air-conditioned, moisture-measuring cap, contributes to the attainment of this goal. As a package, it's just about perfect for the job nature intended it to do.

Industrial packaging has different objectives, but the conditions of product survival are often more severe than any found in nature. The problems of impact, shock, abrasion, breakage, dampness—not to mention cost—can be solved only through adequate package design and *correct* selection of protective materials.

Here's where urethane foam—the lightest, most effective cushioning material yet discovered—can help you. It can be sawed, sliced, die-cut, heat-sealed and molded in place. Packaging engineers call it the most *cooperative* material they've ever worked with—and one of the least costly.

Interested? Write today.

Mobay is the leading supplier of quality chemicals, product development and technical assistance, to manufacturers of urethane foam for industry.

Mobay Chemical Company, Dept. PE-5, Pittsburgh 34, Pa.

MOBAY
First in Urethane Chemistry

on the same laminations were free from the trouble. One theory held that the drying temperatures on the machine were incorrect, yet examination revealed that the recording instruments were giving proper readings. The proponents of the faulty-temperature theory refused to abandon it, and the engineering department was called upon to calibrate the recording thermometers.

Problem: Inadequate drying. Note that it calibrated all the thermometers on all the machines. Here is what was discovered: Those on the machine doing defective work were some 60° F. off! Actually they were reading about 60° F. too high. The low temperature that resulted was responsible for inadequate drying of the laminated stock, with the result that a certain amount of corrosion of the foil took place which would not have occurred had the drying been adequate, as it would have been at 60° F. higher temperature. (See Fig. 2.)

In this instance the remote pedigree was unimportant; rather it was something that was extremely close by to the trouble.

3. Corrosion In Foil Laminated To Paper

In this case the problem and the pedigree are more complex. Although the incident was not in the packaging field it has been chosen because it portrays a different source of trouble and was more difficult to trace back to its cause. The plant was making place-mats for hot dishes in the home by sticking paper-backed foil to heavy paperboard. The user was purchasing the paper-to-foil laminate, coating the paper side with an adhesive, and applying it to the paperboard. A few days after the fabrication of this assembly, corrosion of the foil face began to appear. (See Fig. 3.)

Here was a case where the adhesive was at fault. Although the glue was the culprit, it should be explained that the adhesive had been sold to the pad manufacturer for an entirely different purpose.

To meet the requirements of the different purpose, humectants had been properly incorporated in the glue. These humectants were needed to impart *lay-flat* for a different purpose.

Formulated for specific use. Unhappily, however, the pad manufacturer attempted to use the adhesive for a different application than the one for which it had been formulated, with the foregoing unfortunate results. The moral here is that it is wise to check back with the adhesive supplier to ascertain the technical wisdom of a different application than the one originally specified. As a rule, industrial adhesives are formulated for specific purposes, and are not always interchangeable.

Water-base adhesives for use with foil or foil-to-paper lamination should be chloride-free because chlorides can be transmitted through the paper and thence through the glue-line of the lamination to reach the foil itself and cause corrosion. In addition to the need for the end-converter to use chloride-free glue, the laminant to be used for bonding the foil to paper should also contain an inhibitor against corrosion.

In this case history it is probable that even the maker of the adhesive was unaware of his own company's contribution to the technical pedigree of the laminant.

4. Lack Of Water Resistance In Laminated Stock

Here we present a complex case with a pedigree that was more difficult to discover than any of the previous case histories. Indeed, the one outstanding episode in the series of events in the pedigree appears to be the first such predisposing cause that has ever come to our attention. It occurred in another plant where foil was being laminated to paper, and an important criterion of quality was the water-resistance of the bond between the foil and paper.

Regular tests were being made at periodic intervals of the stock as it came from the machine, and satisfactory tests for water resistance

Compare...

"PRODUCTION DOLLARS!"

VERSATILITY

Liquids, creams, powders or semi-liquids can be packaged accurately *and at HIGH SPEED* on a single BELL-pak machine.

FLEXIBILITY

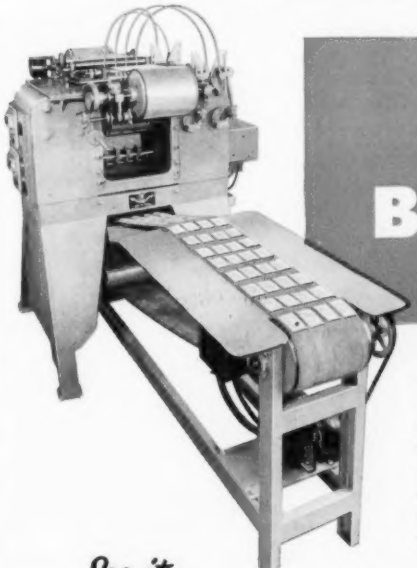
Whether you use film, foil, or any laminated material, *including PVA*, the pouch is made and filled *simultaneously*. Packages are clean — fresh, made directly from roll stock. *Delivered tandem, side by side, or individually.*

SPEED

Dependent upon product and size of package, packages can be filled at rates up to *400 PER MINUTE*. No cams or dies to adjust, package size changes are simple.

FLOOR SPACE

BELL-pak is a *vertical* machine requiring a floor space of only 42" x 41". Fits easily into a variety of packaging lines and can be moved from department to department by fitting on casters.



and your next machine will be a BELL *pak*

For Liquids and Powders

Low initial investment, and the packaging of two, three, and four units *simultaneously* — at high speeds — *cuts unit production* costs to a minimum!

Handles an untold variety of package sizes. Automatically-controlled heat sealing — electric eye registration — unskilled supervision.

See it in Action at the Packaging Machinery and Materials Exposition Booth 742.

BELL·*pak* A DIVISION OF
THE BELL MACHINE COMPANY
Designers and Builders of Precision Machinery since 1907
OSHKOSH, WISCONSIN

Need a tissue that *breathes?*

Tissues that "breathe" air but won't let dust-like particles pass through are just one example of the many special types of tissues developed by Crystal. Maybe you have a need for tissues that can be twisted and woven—or sewed—or impregnated with chemicals. Whatever your particular requirements, chances are that Crystal has or can develop the special tissues you need. Send the coupon for technical information.

First name in tissues for over 60 years

Crystal®

The Crystal Tissue Company, Middletown, Ohio

I want samples and more information on Crystal Tissues for special applications. E 358

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MS *New* FEEDER-FILLER

INCREASES PRODUCTION

. . . CUTS COSTS!

MS combination FEEDER-FILLER is the ultimate in polyethylene and glass filling:

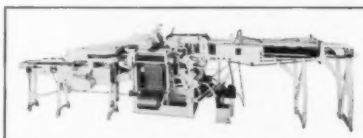
- It feeds and fills any 1.5cc to 16 oz. container, up to 300 per minute
- There is always a backlog of empty containers
- Its simplicity of construction provides easy feeding and filling by only one operator
- It permits simple and rapid change-over of container sizes or products
- It is equipped with no-drip nozzles which fill with extreme accuracy in quantity
- There are no high speed pumps to cause air entrainment or product change
- It gives you low cost per unit per production
- Custom made to your requirements

write or wire for full information

MS MACHINERY SERVICE COMPANY
214 Eiler Avenue, Louisville 14, Kentucky

OFFICES IN PRINCIPAL CITIES

The Model 48 BUNDLER



FEATURES	Model 48	Any Other Machine
Eliminates need for costly cardboard boxes	Yes	
Capable of speeds up to 60 bundles per minute	Yes	
Quick size conversion . . . not over 30 minutes average changeover time	Yes	
Covers maximum length of 12", width of 7½", height of 4½"; minimum length of 6¼", width of 2" and height of 2"	Yes	
Collating and automatic feeding devices custom engineered in the "Continuous Flow" manner	Yes	
Fully "Automated" Operation	Yes	
Cuts packing room labor costs to the bone	Yes	

can help cut your labor costs . . . increase your unit sales

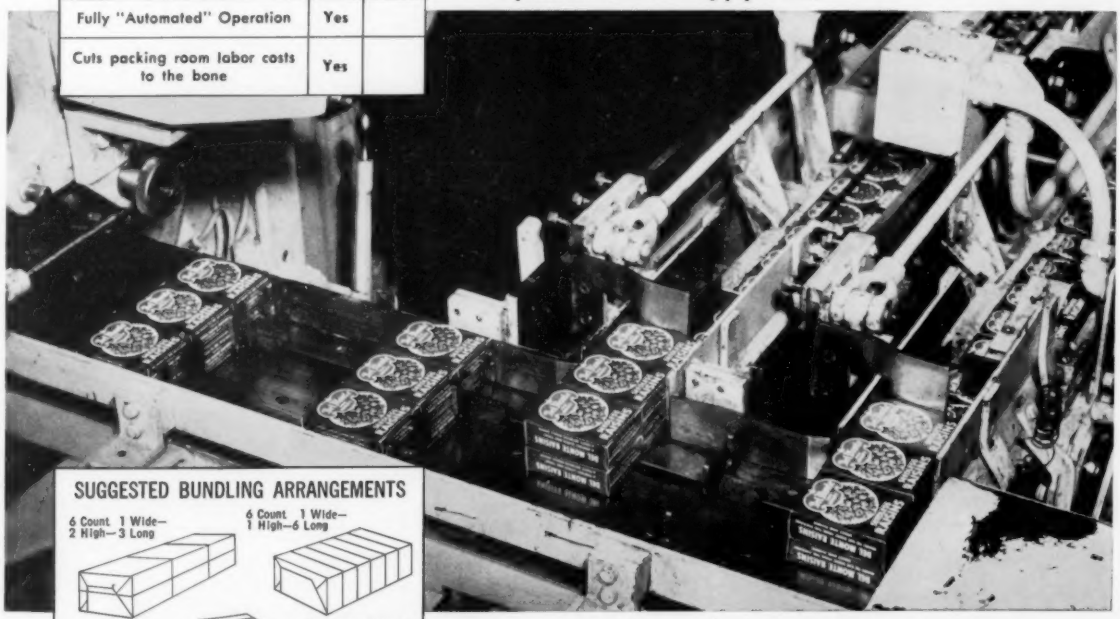
Fast trouble-free group wrapping at lower costs per package

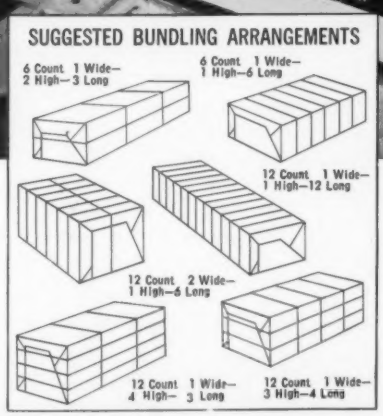
A specialized machine incorporating all the smooth, *"Continuous Flow"* principles of gentle, careful packaging . . . and designed for functional performance in today's automated world. These advantages have been realized from the bundling operation: by eliminating the ordinary cardboard boxes, costs are cut; handling and warehousing of stock is reduced for both distributors and retailers; unit sales of bundled products increase many fold.

Food processors, as well as manufacturers of drugs, cosmetics, matches, etc. are typical satisfied buyers of the Model 48. Labor savings in the packing room are dramatic.

With properly engineered accumulating and feeding devices, the Model 48 may be synchronized with preceding wrapping or cartoning machines, for fully automatic operation.

In the picture below, 1½ oz. raisins were wrapped. Two alternating accumulating devices each delivered 40 units of six (240 individual items) per minute to the Model 48 for wrapping at a speed of 80 groups (480 single packages) per minute. This is one of many cases testifying to the machine's economical, efficient operation and versatility. The wrapping medium can be kraft, book, sulphite or any other paper requiring glue for sealing purposes. Special assemblies can be provided for heat sealing papers also.




SUGGESTED BUNDLING ARRANGEMENTS
6 Count 1 Wide— 2 High—3 Long
6 Count 1 Wide— 1 High—6 Long
12 Count 1 Wide— 1 High—12 Long
12 Count 2 Wide— 1 High—6 Long
12 Count 1 Wide— 4 High— 3 Long
12 Count 1 Wide— 3 High—4 Long

"Continuous Flow" Packaging

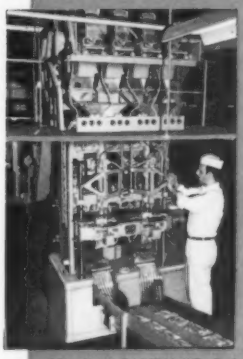
BATTLE CREEK
packaging machines, inc.

100 TWELFTH STREET, BATTLE CREEK, MICHIGAN

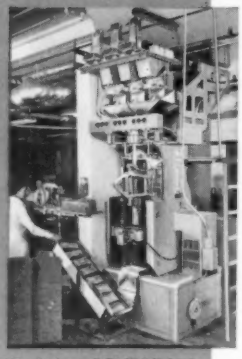
See us at booth No. 406
The PACKAGING MACHINERY & MATERIALS EXPOSITION
MARCH 25-28, 1958
CONVENTION HALL ATLANTIC CITY

THE MENTHOLATUM CO. uses an Automatic Accumulator and Bundler. Saves carton, hand filling and labor costs.

MARATHON CORPORATION, Northern Toilet Tissue wrappers for 2, 3 or 4 roll packages. Hayssen wraps all paper products.



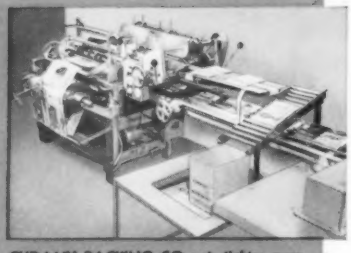
HAYSSEN HAS THE ANSWER TO YOUR PACKAGING PROBLEM!



BRACH'S CANDY CO. finds COMPAK the ultimate in economical, high volume flexible packaging production. Completely automatic.

BARG & FOSTER declares COMPAK best for versatile, low cost flexible packaging of candy, nuts, snacks, etc. Ultra-accurate feeds.

J. P. STEVENS versatile Hayssen textile wrappers save material and labor costs. Hayssen handles all textiles, all wrapping materials.



CUDAHY PACKING CO. gets lighter, more protective sales-producing Bacon wrapping, at less cost, on their new automatic Hayssen.

● Whatever your product, whatever your packaging problem, there's surely a machine in the long and versatile Hayssen line to satisfy your need. If not, we'll build one that will; and, we'll save you money, too!

Whether you require wrapping, bundling, banding, bagging or flexible packaging, Hayssen machines will do it better, run longer with less maintenance, are more versatile and efficient. They're *First* in *Automatic Packaging*.

Visit us in Booth 214, PMMI Show, Atlantic City, March 25 thru 28.

HAYSSEN

MANUFACTURING COMPANY • Dept. PE-3 • SHEBOYGAN, WIS.

first in Automatic Packaging Since 1910

Albany • Atlanta • Chicago • Dallas • Denver • Detroit • Houston • Jackson, Miss. • Kansas City
Los Angeles • Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto

were being obtained for the first three hours of daily operation. But, after the three-hour mark had been passed, the tests became unsatisfactory and poor values were reported. It was rather mystifying, for hand-made paste-ups made with the same glue from the same drum on the same foil and paper stocks would show good water-resistance tests while at the same moment the machine-made lamination was showing unsatisfactory tests.

A question of starving. Critical examination of the machine performance showed that the adhesion was starved, i.e., it did not have enough glue to hold the two stocks together after the three-hour mark had been passed.

Further study revealed that foam was developing slowly in the glue reservoir and that, as a result of this foam, the glue itself was being literally diluted by tiny air bubbles and was losing its viscosity. As the viscosity of the glue diminished, the *squeeze rolls* came closer together because there was less force holding them apart. This squeezing led to a starved glue application. With a starved application the bond lacked water-resistance, for the shear stresses on immersion were able to *rupture* the *starved bond*.

Those who are accustomed to trouble shooting in factories will see nothing extraordinary in these four case histories. Obscure causes of trouble have been observed before now. But the point we wish to stress is that in the prior technical history or pedigree of a case of trouble there is always some unit or episode in the chain of events that will have a marked effect upon some future event.

It is important to develop a systematic habit of thought when investigating a technical headache, and to try to reconstruct the pedigree or concatenation of all the prior events in the search for the one that is most likely to be the culprit. Or, stating it in another way, the pedigree concept is recommended as a basis for systematic understanding of the dynamics of adhesion.

Quicker, Easier, Less Costly

STENCILING *with* REYNOLDS *SPRAY* STENCIL INKS

quick drying—waterproof

Specially compounded ink assures utmost economy and satisfaction.

Many outstanding advantages:

MODERN easy to hold aerosol container sprays a dense cone of specially formulated opaque ink at the touch of a finger. Not a paint or lacquer. Dries instantly. Always ready to use. No brushes to clean or load. No drying out. No mess. No waste. No build-up or curtaining.

PROVEN BEST for all stenciling on boxes, crates, cartons, drums, or any steel, wood, fabric, concrete or other surface.

9 COLORS. Ideal for color coding equipment and materials, design layout work, inspection marking, department routing, signs and warnings, etc.

WRITE **for color card and name of nearest dealer** ***TODAY!***

ASK US ALSO about Reynolds sprayed Stencil Kover®, the opaque tan colored block-out fluid that covers over old stenciling or other markings. Dries quickly. Permits re-stenciling of original containers, correction of errors, and salvaging overruns of printed cartons.

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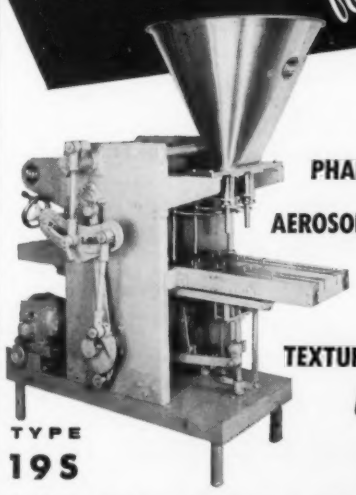
For more information circle No. 235 on Card

TAILOR-MADE *for filling*



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TYPE 19S

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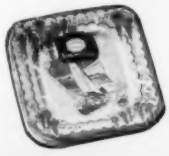
- See the Oliver in action at BOOTH No. 305 PMMI SHOW MARCH 25-28 ATLANTIC CITY AUDITORIUM

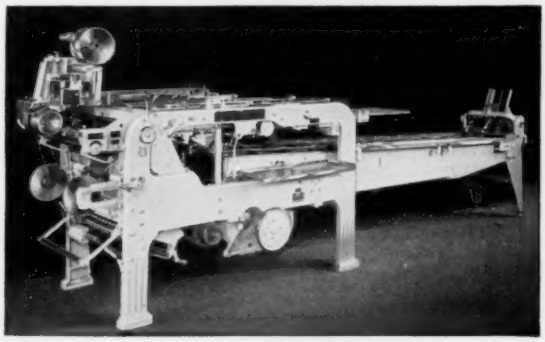
On short runs and long runs . . . the versatile OLIVER wraps and labels products to sell and save

Oliver Roll-Type Labeling System saves dollars daily

Automatic Labeler heat seals a roll-type label (printed by Oliver) to the wrapper. Label can be imprinted with essential information just before it is applied. Imprint items changeable in a few seconds. Labeler—with or without Imprinter—can be attached to other makes of wrapping machines. Get all the facts.

The quick adjustability of the Oliver saves hours and dollars every day. And you know that your products are wrapped and labeled to look their best. Many products are wrapped and labeled on the Oliver: paper specialties, textile items, baked goods, meats, and products only remotely similar. It wraps them rapidly, securely, neatly. Using modern wrapping materials, it heat-seals or glue-seals packages for utmost protection. Infeed conveyors in various lengths. Printed wrappers registered by electric eye. Foolproof cardboard folder-feeder. Eight models—speeds up to 50 a minute. Its one-man operation and versatility make the Oliver indispensable on short and long runs. Write for details.





Oliver Machinery Company
Grand Rapids 4, Michigan

OLIVER Wrapping Machine with Roll-Type Labeling System

For more information circle No. 237 on Card

Packaging Problem? Here's how Patterson Frozen Foods solved theirs!

"We used self-sealing PRESSEAL cartons," said Mario Ielmini, president of Patterson Frozen Foods. "Some of our frozen foods packages could not be handled by mechanical equipment. A comprehensive cost survey in our plant of taping, stapling, and similar methods proved PRESSEAL as the economical solution to a problem no other packaging technique could solve."

You, too, can solve your packaging problems with easy-to-use self-sealing PRESSEAL cartons which completely eliminate taping, gluing, stapling, and other sealing equipment. Factory treated PRESSEAL carton flaps adhere together with the pat of a hand, but these same flaps will not stick to other surfaces. PRESSEAL slashes labor costs, saves time, speeds production, requires no auxiliary material or equipment. Sturdy PRESSEAL cartons withstand rough usage and prolonged storage.

PRESSEAL can be used with an infinitely wide variety of products including: floor tiling • medical supplies • clothing • toys • stationary supplies • industrial parts • paint • tools • candy • packaged foods • and many others

If you're packing in corrugated cartons, you'll be packing better with PRESSEAL!

For Information on

PRESSEAL®

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Stanley P. Schumacher attended Cornell College. He was engaged in the newspaper field, after which he entered into a business of his own. Mr. Schumacher began his career in packaging when he became associated with Micro Switch in June, 1956, as a member of its package design unit.

Simple package for mercury switches eliminates breakage, increases production efficiency

By Stanley P. Schumacher,
Packaging Designer,
Micro Switch, Div. of Minneapolis-Honeywell Regulator Company,
Freeport, Illinois

A hermetically-sealed glass tube containing a volume of mercury smaller than the tube itself poses a packaging problem from the standpoint of protection against breakage. In describing the problem, Mr. Schumacher outlines the use of a simple, but foolproof, package which consists of a cushioning material adhered to non-test, single-faced corrugated board, plus a reverse-tuck carton. It eliminates breakage and permits use of one standard size package. He explains the new method of packaging and how it enhances packaging efficiency.

The reaching of one objective sometimes leads to another which results in additional advantages not thought of when the first objective was planned. Such was the case when a better package was sought for our mercury switches—to reduce breakage. Finding the proper cushioning material to provide just the proper amount of resiliency and "set" for packaging these delicate mercury switches was the primary aim. It so happened that the material which had these qualities enabled the standardization to one size carton for all the switches regardless of their size.

The background of the problem rests in the nature of a mercury switch. It consists of a hermetically-sealed glass tube containing a specific amount of mercury, depending upon the rating and ultimate use of the switch. The *volume* of mercury is considerably less than that of the tube, but the *weight* is greater. There are at least two, and frequently more, electrodes, each protruding from a different point of the tube. A wire lead is connected to the outer end of each electrode. Mercury switches vary in size and shape, depending on how they are to be used.

A Fragile Product

In any kind of movement of the tube, the mercury shifts almost instantaneously — this is the basic principle of this type of switch. During normal shipping and handling, the extremely high-density mercury exerts a great deal of force on the thin-walled glass. This is especially true when the mercury shifts rapidly from one end of the tube to the other.

Holding the tube in a completely *rigid* position within its package is of little value since any primary shock is transmitted instantly and directly to it. Thus the theory develops that under shock the glass tube must be allowed to move slightly with the shifting weight of the mercury or the glass will break.

We have approximately 107 different mercury switch catalog listings on our finished goods stock list. They vary in size from 1/4 in. to 3/4 in. in diameter, and from 1-1/2 in. to 3 in. in length. The amount of mercury varies from a few grams to as much as 55 grams. Each switch contains from two to four wire leads which vary in length from about 4 in. to 30 in. The switches are different shapes, from straight to curved, with small and large protrusions. It is not uncommon to find various combinations of diameter, length, number of wire leads, shape of the tube,

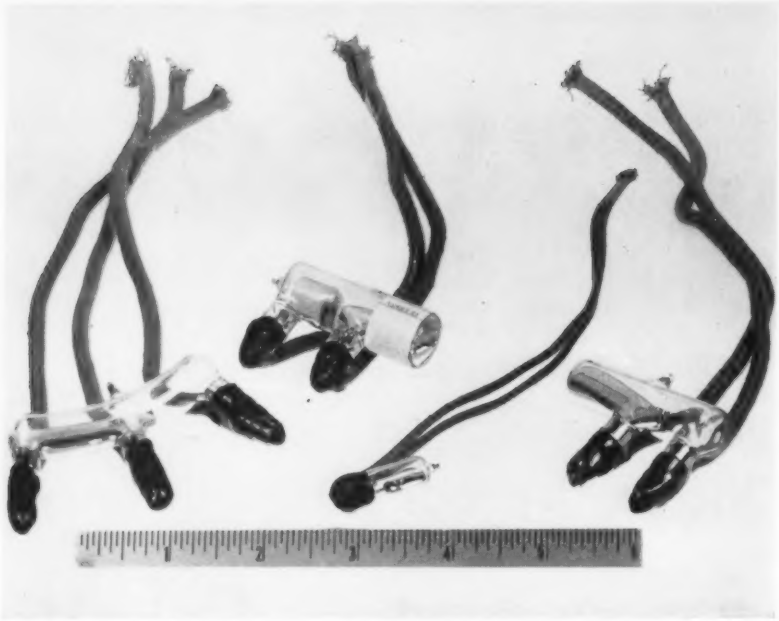


Fig. 1. Four different types of mercury switches. There are numerous combinations of diameter, length, number of wire leads, shape of the tube, and weight of the mercury making up different types of switches depending upon their rating and end-use.

and weight of the mercury making up different type switches depending upon their rating and end-use. Fig. 1 shows several of these combinations.

Old Package Inefficient

Previously we bulk-packaged our switches at the point of manufacture, all switches in one bulk container being the same type. These were sent to finished goods stock. Since practically all stock orders were under the minimum bulk pack quantity of 50, we removed the switches from bulk and boxed them individually to fill small orders.

We had two sizes of packages for this individual pack: A small, reverse-tuck carton for the smaller size switches; a large, full telescope carton for the bigger ones. The method of packing consisted of wrapping a piece of industrial wadding material around the switch, then a second piece of wadding lengthwise around that, and finally, inserting it into the carton.

With these packages, and due to the human element, we found great variations in the amount of wadding used. With too little wadding, we had breakage; with too much, we still encountered some breakage, and the cartons were bulged out of shape, making it difficult for dealers to stack them on shelves.

Previously to this type of package other methods and materials were used in conjunction with individual packaging. In one instance a die-cut chipboard folder was used, placing the switch into the die-cuts and then wrapping the folder around the switch. The folder was then placed into a kraft envelope and then into a reverse-tuck carton. The package provided inadequate cushioning and involved too much labor.

Bottle wrap was also used. The switch was placed on a standard size piece of this wrap and then rolled inside it. After utilizing the entire piece, the paper extension was tucked in the ends and the switch then placed into a reverse-tuck carton. Two sizes of cartons were used, one for small and one for large switches. The package was ample for the small switches, but breakage in the larger carton was excessive and the package was discontinued because of such damage.

New Material

In an effort to eliminate this problem of variations in packaging and ultimately reduce breakage, I investigated the availability of a cushioning material mounted to another more rigid material. After much independent investigation and after experimental work which I suggested to the supplier, I found that a material made of synthetic fibers bonded together and adhered to non-test single-faced corrugated board was the answer. I determined a cushion thickness of about 3/4 in. to be most satisfactory for the purpose.

One of the significant properties of this synthetic material is its resilient cushioning with a predetermined "set" factor. In this package the switch creates its own cavity by partially compressing the fibers in contact with it. The fibers surrounding the switch remain uncompressed and serve as a protective wall against shock. Initial shock is taken up by this protective wall of uncompressed fibers. A portion of any secondary shock is absorbed by

TECHNIQUE OF PACKAGING MERCURY SWITCHES

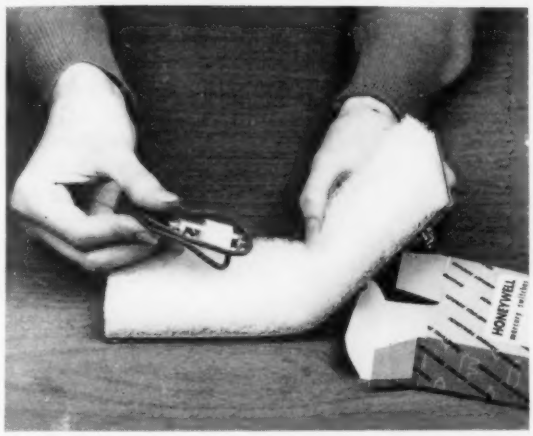


Fig 2. In the first step, the switch is placed on one half of the cushion insert.

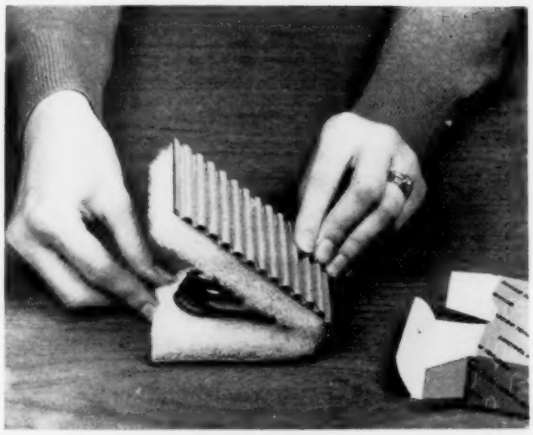


Fig. 3. Next, the other half of the insert is folded down over the switch.

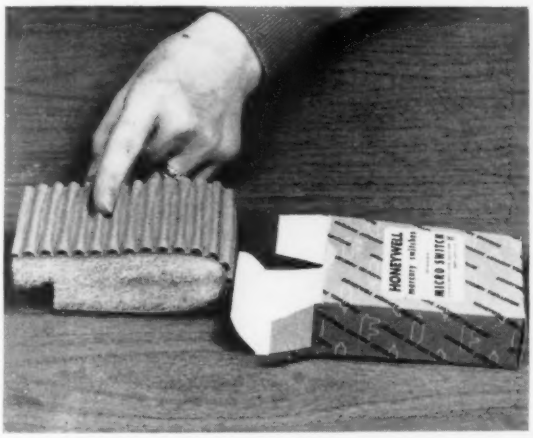


Fig. 4. Note that the top half of the insert extends about ½ in. beyond the lower half.

Fig. 5. The folded cushion carrying the switch is inserted into the carton.

Fig. 6. The ½ in. extended end of the insert is folded down prior to closing the carton.

Fig. 7. In the final step of packaging, the snugly-packed carton is closed.

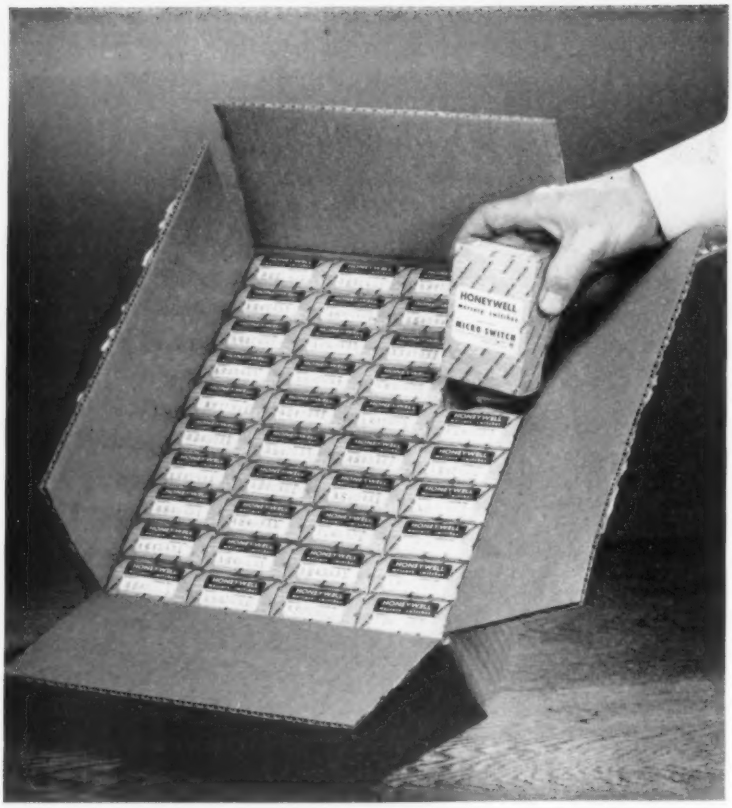


Fig. 8. A corrugated shipping container holding 40 individually-packed mercury switches. The same size container will hold 50 Micro Switches since standard printing is used on all cases—proper numbers to identify the contents are imprinted in one specified area on the shipping container.

the partially compressed fibers.

The single-faced corrugated board serves as a fine medium for easy handling of the cushioning material. Double-faced board was not satisfactory as it had to be scored at the point of folding. Even then it was too stiff to handle easily. Another advantage of the single-faced board is that the exposed flutes absorb some of the secondary shock.

The new package consists of this material plus a reverse tuck carton. The cushion insert is die-cut to size so that when it is folded once, it fits snugly inside the carton. The size of the carton is such that it accommodates any size and/or shape mercury switch we manufacture. Each switch, regardless of size, is protected sufficiently by this single size package. It has eliminated breakage.

Increased Production Rate

Now we package the switches individually at the point of manufacture. The new method of packing is greatly simplified as compared to the old. (See Figs. 2 through 8.) The girl picks up the switch with her right hand and simultaneously picks up the cushion insert with her left. Placing the switch on one half of the insert, she folds the other half over it, allowing about 1/2 in. of the top half to extend beyond the lower half. She then slides the folded insert into the carton, folds down its extended end, and closes the carton.

Because of the speed at which the switches are packaged in this manner, we increased our production rate to more than three times that of the old method. Also, simplicity of design and ease of handling practically eliminates error on the part of the packaging personnel. There is no chance that too much or too little cushioning will be used.

We pack 40 of these individually packed switches per corrugated shipping container. (See Fig. 8.) This case of 40 is placed into finished goods stock. Incidentally, we use the same case for packing 50 of our Micro Switches since we use standard printing on the case—we imprint one area of the case with the proper numbers to identify the contents.

With the switches already individually packaged, we fill small orders without the necessity of boxing each switch prior to assembling the order. Then we eliminate the second packaging operation previously necessary with the old method. Also, should a user order several switches each of many different types, we pack 40 of them per case regardless of size, shape, etc., since the cartons are of uniform size. This reduces the time previously required to pack such orders with the old type packages.

Package Standardization

By standardizing to one size carton, we purchase in larger quantities, which results in volume savings. Likewise, we purchase the shipping containers in larger quantities, since we pack all types of mercury switches and our Micro Switches in the same size case.

We realize that standardization to one size carton is over-packaging the very small switches. However, with the ultimate savings involved, the single size carton is advantageous to us.

There is only a slight saving in cost of the actual packaging materials—the cushion insert and the carton. This amounts to about 3.7 per cent and is worthwhile in itself. However, coupled with the savings due to avoidance of switch breakage, time, increased production rate, elimination of a second packaging operation, etc., our end-saving monetarily is very substantial.

Here is a chance for the technical and operational packaging specialist to attend a show that focuses its entire efforts on meeting his needs. Machinery and materials in operation (with men of "know how" exhibiting them) assure practical demonstrations for practical packaging people.

The Packaging Machinery and Materials Exposition of 1958

Some 150 exhibitors occupying over 60,000 square feet of floor space will have top level management as well as sales, service, and technical representatives present at Convention Hall, Atlantic City, New Jersey, March 25-28. W. B. Bronander, Jr., president of Packaging Machinery Manufacturers Institute, sponsor of the PMME, reports scores of exhibitors showing both new and drastically revised models of packaging machinery.

The majority of displays will be "action" exhibits, showing how the machinery displayed performs packaging operations on the spot.

Hand in hand with the Exposition itself go the special technical sessions sponsored and conducted by Packaging Institute. These sessions will take place in Room B of Convention Hall and will start on Monday, March 24th—a day ahead of the official opening of the PMME itself.

Themes and hours of the sessions are:

Monday, March 24th, 2:00 to 5:00 p.m.—Latest developments in packaging materials.

Tuesday, March 25th, 9:00 a.m. to 12:00 noon—Management day and a special "Meet the Packaging Press" session.

Wednesday, March 26th, 9:00 a.m. to 12:00 noon—Your packaging machinery.

A special "kick-off" dinner will be held Monday evening, March 24th, at the Chalfonte Hotel.

Hours of the exposition are:

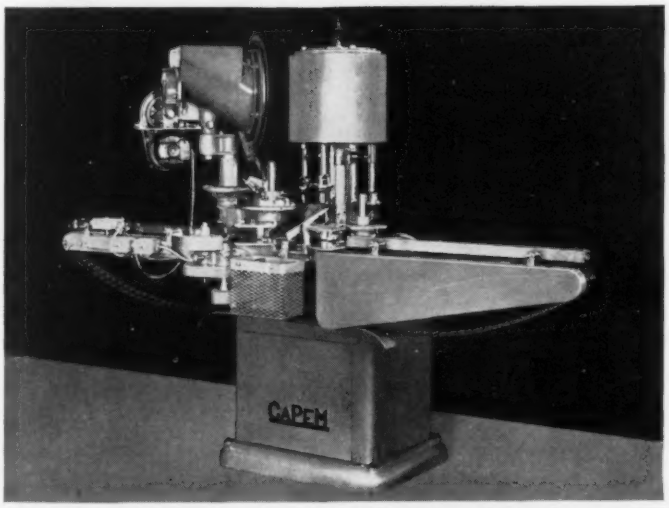
Tuesday, March 25th: 12 noon to 5:30 p.m.

Wednesday, March 26th: 9:00 a.m. to 5:30 p.m.

Thursday, March 27: 9:00 a.m. to 5:30 p.m.

(Turn Page)

CAPEM THE MODERN SCREW CAPPER



- Applies any type of standard screw cap or cover at speeds of 2,000 to 10,000 per hour.
- Takes container from conveyor line, applies cap perfectly, and returns container to conveyor AUTOMATICALLY without intermediate handling.
- Handles bottles, jars, cans or jugs of any size or shape.
- Delivers a perfect, LEAKPROOF seal at low cost.
- Available in 1, 2, 4, 6 and 8 spindle models.

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CONSOLIDATED PACKAGING MACHINERY CORP.
Buffalo 13, New York

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SILICONE RELEASE AGENT

heat stable — easy-to-use

Here's a sure way to keep sticky materials from "gumming-up" packaging and labeling operations. Just apply *Slipicone* to your equipment. Films, waxes, adhesives and other packaging materials just won't stick to it!

Slipicone saves you money! Packaging equipment stays cleaner, more sanitary . . . cuts your maintenance costs. In heat-sealing, Slipicone prevents the pile-up, browning and ink smear that can ruin package appearance.

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Dies and power supplies are available for "U" shaped seals, small circles, under 3" diameter and closed straight-line geometric forms. They can be furnished as parts of complete machines or as separate components for incorporation into existing machines.

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REPRESENTATIVES IN PRINCIPAL CITIES

SEE US AT THE PMMI SHOW — BOOTH 812.

Friday, March 28th: 9:00 a.m. to 1:00 p.m.

On the following pages appears a "booth by booth" listing of exhibitors together with a brief description of what each has reported as planning to exhibit.

A-B-C Packaging Machine Corp.
Booth: 617 **Hotel: Crillon**
Exhibiting its Junior semi-automatic top and bottom case sealer and, for the first time at any packaging show, its Model RA automatic top and bottom case sealer. The Model RA sealer has four glue pots.

A & M Tool & Die Co., Inc.
Booth: 638 **Hotel: Shelburne**
Exhibiting in actual operation its Model FS-22, a 22-station SAGA tube filling and sealing machine. Also on display will be various SAGA accessories and attachments.

Algene Marking Equipment Co.
Booth: 614 **Hotel:**
Exhibiting its roller printers, 4-Way printer, flat box printer, and a new printer which has a marking area of 2x11-1/2 in.

Aluminum Co. of America
Booth: 202 **Hotel: Shelburne**
Exhibiting its aluminum foil over-

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PACKAGE engineering
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Chicago 1, Illinois

wraps and cartons, Alcoa closures for food, pharmaceutical, and distillery products, and Alcoa collapsible tubes. Also on display will be its new foil laminated corrugated boxes and foil laminated multiwall bags.

American Viscose Corp.
Booth: 321 **Hotel: Dennis**

Exhibiting equipment for cellophane testing and processing, including a static load tester, a pliability tester, a flex tester, and a web conditioner.

Amsco Packaging Machinery, Inc.
Booth: 609 **Hotel: Madison**

Exhibiting two edge-sealing setups, a bag packaging lineup and a high-speed rotary filling machine for rigid containers. Basic units in these operations are respectively the Amscomatic 100 rotary sealing machine and the Whiz-Packer rotary filler.

Anderson Bros. Mfg. Co.
Booth: 730 **Hotel: Claridge**

Exhibiting its Model 134 Speedy Bagger, Model 157 Sanitary table, Model 600 filler and capper, and Model 377 powder filler, as well as other new pieces of equipment.

The Arabol Manufacturing Co.

(*Turn Page*)

CHAFFEE ROTOR-SEALER

In Production Line Sealing
The #1 Sealer

WHY? Because it seals all popular sealable materials. You may change your package from sealing bag top labels on cellophane, polyethylene, pliofilm and saran to the sealing of unsupported films, viz; cellophane, polyethylene, pliofilm, vinyl by simply turning the thermostat dial.

Military Approved Sealer Available

RALPH CHAFFEE & CO.

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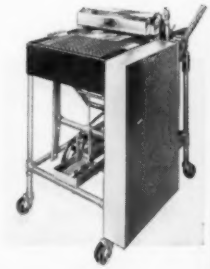
CORLEY-MILLER FOR ECONOMICAL WRAPPING . SHEETING . HEAT SEALING

Corley-Miller Model MPS WRAPPING MACHINE

Semi-automatic. Wraps a great variety of package sizes. Readjusts speedily. Wraps up to 21 packages per minute. Uses roll wrapping material or cut-to-size sheets. Gluing mechanism available for non-heat sealable wrappers. Many time and labor saving attachments available. Popular for single unit wraps and for bundles. Also wraps open trays, some bottles.

Corley-Miller Model BL SHEETER-GLUER

Synchronizes sheeting and wrapping operations. Delivers pre-glued or dry wrappers on conveyor or into accumulator tray, at speeds up to 36 per minute. Variable speed drive sets pace. Ideal for use with polyethylene, cellophane, Mylar, Saran, Vitafilm, acetate, glassine, kraft, etc. For banding as well as complete wraps. Attachments such as slitters, electric eye, banding trough and others available.



Corley-Miller Model KW "KWIK-WRAP" SHEETER

Cuts sheets of polyethylene, Saran, Mylar, Cry-O-Vac, acetate, or other films from rolls. Delivers cut sheets to finger tips of one or more operators . . . up to 36 sheets per minute. Operates by trip or continuous. Ties in perfectly with conveyorized hand wrapping of cheese, meats, textiles, etc. Two models. 16" and 24" roll widths. Simple, compact, mobile, low-priced.

CORLEY-MILLER Thermostat Controlled HOT PLATES and IRONS

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Write for Complete Hot-Plate Bulletins

Model BJ Vertical Polyethylene Sealer
Widely used for sealing polyethylene. Ideal for textile wrapping or comparable work. Vertical ribbed polyethylene sealing surface 5" high by 10" wide, removable for Cellophane or other films. Thermostatic control.

Models BK and BU Hot Plates
Seal wide range packages in Cellophane and other heat sealable films. Optional snap-on "No-Stick" cover prevents crusting, saves clean-up time. Either bench top or flush mounting. Model BK, 5" x 10" draws 500 watts. Model BU, 10"x10" draws 1,000 W.

Models BKR and BUR Close-Control Hot Plates
Premium quality plates for close temperature work. Perfect for Saran, Pliofilm, and cellophane too. Thermostat is durable, remote control, precision type. Raised or flush mounting. BKR, 5" x 10" draws 500 watts. BUR, 10" x 10" draws 1,000 watts.

Model EZ Super-Sealer Hand Iron
Heavy duty. 8 special features for high efficiency. U.L. approved. Seals cellophane, waxed or thermoplastic coated papers. Roller for Pliofilm optional. Range 200° to 500° F. Sealing surface 1-7/16" x 4-3/4".

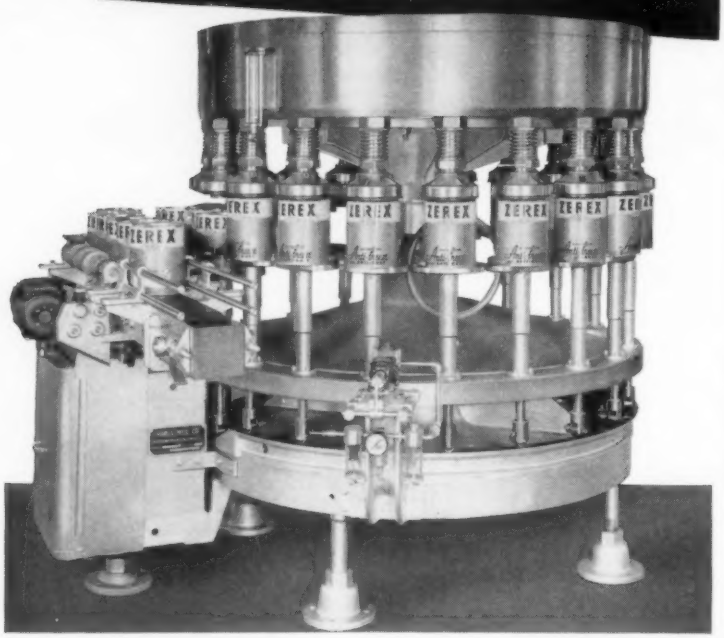
Miller Wrapping & Sealing Machine Co.

18 S. Clinton St., Chicago 6, Ill.
Phone: RAndolph 6-1883

For more information circle No. 243 on Reader Service Card

The Modern Packaging Line

starts with the choice of the Filler!



. . . and your best choice is a HORIX!

The filler is without a doubt the most important machine in the line. It alone handles both bulk product and container . . . and *how* it does this very often spells the difference between profit and loss.

Horix gravity fillers are noted for their ability to handle any liquid or semi-liquid without loss or contamination; and any size or shape container without damage . . . this at top speeds with extreme accuracy of fill.

The model illustrated (HFS-20) is the latest addition to the Horix full line of fine can and bottle fillers. It is shown filling anti-freeze into sanitary gallons at 150 per minute, *the fastest speed in the industry for this type container.* This size filler also available for filling of "F" style cans.

VISIT HORIX BOOTH NO. 618—PACKAGING MACHINERY AND MATERIALS EXHIBIT—ATLANTIC CITY—MARCH 25-28

JUST OFF THE PRESS—This new catalog describes Horix's full line of automatic, semi-automatic and hand operated fillers. It includes modern machinery for the small plant and for highest speed production lines. Write for Catalog No. 581-P.

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Booth: 907 **Hotel: Claridge**
Exhibiting a variety of its adhesives.

Arenco Machine Co.
Booth: 906 **Hotel: Shelburne**
Exhibiting its high-speed twin tube filling machine, type GAN.

Armour and Company
Booth: 129 **Hotel: Traymore**
Exhibiting its polyvinyl resin packaging adhesive, Seban, and its liquified bone glue, Armoglu. Seban is a recently developed resin adhesive designed especially for sealing cartons, cases, window boxes, tubes, bags, etc.

Barkley & Dexter, Inc.
Booth: 210
Hotel: Chalfonte-Haddon Hall
Exhibiting moving pictures showing various engineering developments; a gallery of frames showing exploded and progressive arrangements of operations; and unit assemblies of interest to packaging people in respect to accurate, rapid automatic machine adjustment, counting, and control.

Bartelt Engineering Co.
Booth: 533 **Hotel: Claridge**
Exhibiting several recently-developed machinery units.

Better Packages, Inc.
Booth: 621 **Hotel: Dennis**
Exhibiting its new Boxize Tape-O-Matic machine and its Tape-O-Matic dispensers with a full range of electronic controls.

Brown Filling Machine Co., Inc.
Booth: 114 **Hotel: Claridge**
Exhibiting a new model of its liquid packeting machine, which forms and fills multiple packets with each stroke.

John-Burton Machine Co.
Booth: 629 **Hotel: Dennis**
Exhibiting in operation its new automatic Cellubander, designed for the automatic and mechanical application of cellulose bands to bottles and jars.

Chain Belt Co.
Booth: 534
Hotel: Chalfonte-Haddon Hall
Exhibiting its conveyor and drive chains, power transmission machinery, bulk material-handling equipment, and self-aligning roller bearings.

Chase Companies
Booth: 733 **Hotel: Shelburne**
Exhibiting a new high-speed, fully automatic sterile powder filling machine; an automatic bottle sorting machine for polyethylene bottles; an automatic stoppering machine for polyethylene bottles; a machine for

automatically assembling polyethylene tubes into plugs at high speeds, and an automatic solution filling machine for vials.

The Clark-Aiken Co.
Booth: 125 **Hotel: Claridge**

Exhibiting a newly developed lift table, as well as films of its sheeting equipment.

Clybourn Machine Corp.
Booth: 530 **Hotel: Dennis**

Exhibiting its Tuc-Pac machine.

Arthur Colton Co.
Booth: "D" **Hotel:**

Exhibiting its Model 172 polyethylene tube filling and sealing machine, which fills and seals polyethylene tubes up to 2 in. in dia. at rates up to 60 tubes/min., and its Model 60 blister package assembly machine, which will pressure seal pre-glued designs at rates up to 48 pkgs./min. Both of these machines are new.

Comet Industries
Booth: 126 **Hotel: Dennis**

Exhibiting its automatic skin packaging and slitting unit and its Meteor automatic vacuum and drape thermo forming machine.

Conapac Corp.
Booth: 302 **Hotel: Shelburne**

Exhibiting its new Roto Gas Pak machine, a fully automatic machine designed for packaging of food products in gas filled, flexible containers. Also on display will be other Conapac packaging equipment.

Consolidated Packaging Machinery Corp.
Booth: "B" **Hotel: Dennis**

Exhibiting its Model O-Mark-II bagging scale and Model ET-Mark-II bag closer mounted together for common operation; its Model H-O-FV machine for sorting and applying aerosol valves; and a close coupled two-spindle Kottoner and combination capper on a common conveyor.

Container Equipment Corp.
Booth: 309 **Hotel: Dennis**

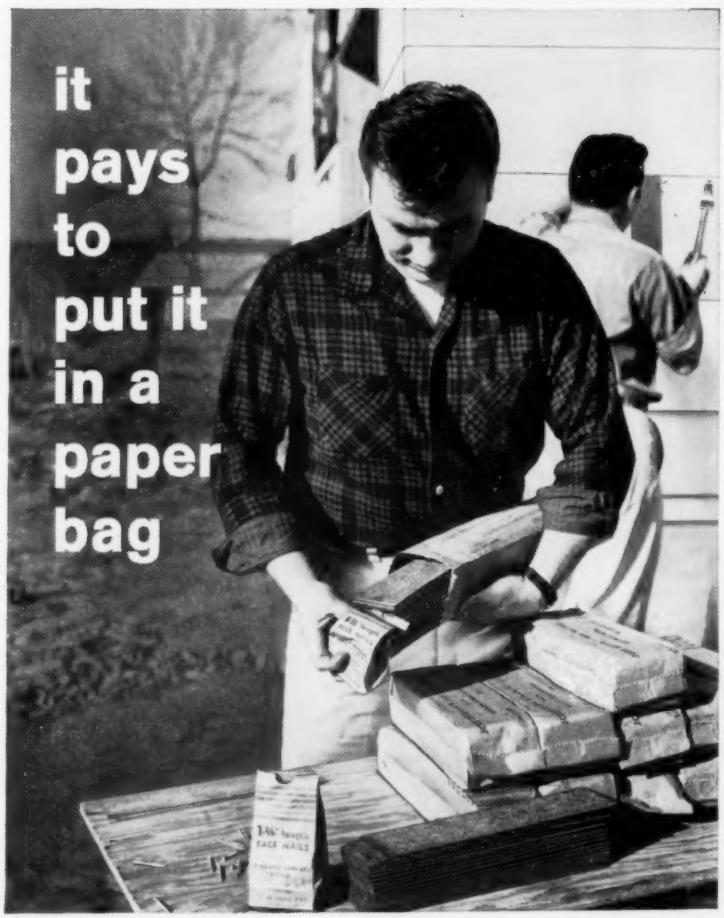
Exhibiting its Model 45-9-½ TT fully automatic cartoner designed for the packaging of bottled products; Model 40-15-½ adjustable cartoner designed to handle facial tissues; and Model 3901-12 adjustable carton glue sealing machine.

Crompton & Knowles Packaging Corp.
Booth: 509 **Hotel:**

Exhibiting a completely automatic feed attached to its Model B bundling machine; a Model DW series wrapping machine for round and unusual shaped objects; and a case opener which automatically takes knocked down shipping cases from a magazine.

when you package a product for

FIELD ASSEMBLY



Paper bags keep related field-assembly items in place—eliminate errors. They save you and your customers time and labor. They protect your product.

In the nails-and-siding packages illustrated, small bags pack face nails; large bags, siding strips. One filled bag of nails is placed inside and complete unit stapled closed.

Booklet P-2 describes dozens of different ways paper bags help cut component part costs, speed handling, insure safe arrival of all items required. Write for free copy today.

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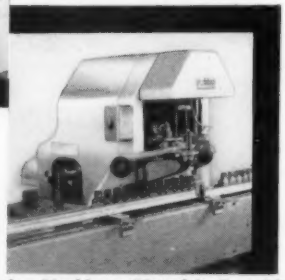
CORPORATION
233 BROADWAY, NEW YORK 7, N. Y.

Fast Filling and Accurate Count

Lakso "48" Tablet Counter

- For compressed tablets and gelatin capsules
- Fills up to 100 bottles of 100's per min. Other models up to 300 bottles per min.
- Quick changeover
- Floor space only 27" x 42". Height 56"
- No. 53 Conveyor optional



No. 52 Automatic Bottle Cottoning Machine

- Cottons up to 100 bottles per minute
- Extremely flexible to handle wide range of bottles and cotton.

SEE US AT BOOTH 702, Packaging Machinery Materials Exposition

For complete information write

THE *Lakso* COMPANY, INC.
FITCHBURG, MASSACHUSETTS

For more information circle No. 246 on Reader Service Card

Crown Zellerbach Corp., Western-Waxide Specialty Packaging Div.
Booth: "F" **Hotel: Chalfonte-Haddon Hall**

Exhibiting new cook-in pouches; waxed and foil overwraps and breadwrappers; printed cellophane; foil, glassine, poly-laminated, and waxed bags; Mullinix packages; and various specialty packages for the bakery, dairy, and meat industries.

Delta Engineering Corp.
Booth: 133 **Hotel:**

Exhibiting its electronic counting machine in combination with cartoning equipment.

Dennison Manufacturing Co.
Booth: 118, 217
Hotel: Marlborough-Blenheim

Exhibiting the Therimage labeling process, made possible by a special Adolph Gottscho Co. attachment applied to packaging machines. Actual demonstrations of this process, which makes it possible to get the effect of printing during the packaging operation, will be given.

Derby Sealers, Inc.
Booth: 803 **Hotel: Shelburne**

Exhibiting a line of electric machines for both kraft and reinforced gummed tapes, an electrically-operated pres-

You'll never know HOW MUCH FOREIGN MATTER THERE CAN BE IN NEW CONTAINERS UNTIL A *Sanitair* AUTOMATIC AIR CLEANER *proves it to you!*

A GOOD PRODUCT Deserves a Clean Container
for Chemical Safeguards . . . for Product Uniformity!

YEAR AFTER YEAR more packaging engineers, who had considered container cleaning unnecessary, become its greatest boosters. They will tell you that air cleaning is indispensable to quality control.

Once the completely automatic Sanitair Air Cleaner is synchronized into the packaging line, its operation is entirely automatic. Handles all size container openings with quick changeover for container sizes.

Most widely used automatic air cleaner. Does a thorough job . . . at high speed . . . in small space . . . at low operating cost. For complete information, write for the "Sanitair Bulletin."

Semi-automatic. For air cleaning new containers of any size or type. Containers are inverted over the air valves, two at a time, up to 40 per minute. Easy, fast, efficient. Positively removes all loose lint, dust, etc. Write for "E-Z Bulletin."

For rinsing any size or shape bottles or jars; ounces to gallons. Cleans both insides and outsides of containers: water, steam or air. For details, write for the "Rotary Rinser Bulletin."

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SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT

sure-sensitive tape dispenser, and automatic labeling equipment for pressure-sensitive labels, in addition to its regular line of gummed kraft and pressure-sensitive tape dispensers.

Dobeckmun Co.
Booth: 418 **Hotel: Dennis**

Exhibiting a complete line of flexible packaging materials, with emphasis on its Durafilm (cellophane or polyester and poly), Metalam (any foil combination), and the recently developed Metalseal, a foil-paper-wax combination.

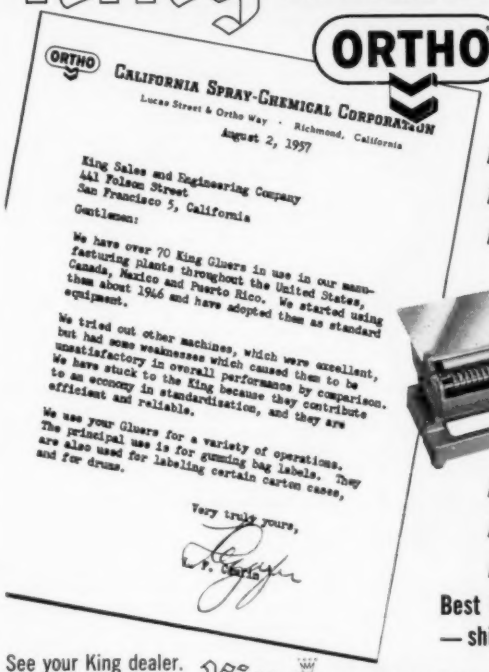
Doughboy Industries, Inc.
Booth "E" **Hotel: Ritz-Carlton**

Exhibiting its complete line of heat sealing machinery and conveyors, and showing for the first time its new jaw sealer-labeler, which features positive label delivery to the bag top and bag holding for the complete sealing cycle.

Economic Machinery Co.
Booth: 405
Hotel: Chalfonte-Haddon Hall

Exhibiting its World Super C.M. labeling machine equipped for front and back body labeling of a pharmaceutical package. This machine will be equipped with a bottle spotting mechanism which will pre-position or ori-

King GLUERS are used by ORTHO everywhere


ORTHO
CALIFORNIA SPRAY-CHEMICAL CORPORATION
Lucas Street & Ortho Way · Richmond, California
August 2, 1957

King Sales and Engineering Company
441 Folsom Street
San Francisco 5, California

Gentlemen:

We have over 70 King Gluers in use in our manufacturing plants throughout the United States, Canada, Mexico and Puerto Rico. We started using them about 1946 and have adopted them as standard equipment.

We tried out other machines, which were excellent, but had some weaknesses which caused them to be unsatisfactory in overall performance by comparison. We have stuck to the King because they contribute to an economy in standardization, and they are efficient and reliable.

We use your Gluers for a variety of operations. The principal use is for gumming bag labels. They are also used for labeling certain carton cases, and for drums.

Very truly yours,

L. T. Curtis

✓ TRUE PORTABILITY
✓ POSITIVE CONTROL
✓ EASIEST CLEANING

✓ ECONOMICAL
✓ VERSATILE
✓ EFFICIENT

Best for all manual labeling — shipping — mailing

See your King dealer.
Write for details.

King SALES AND ENGINEERING CO.
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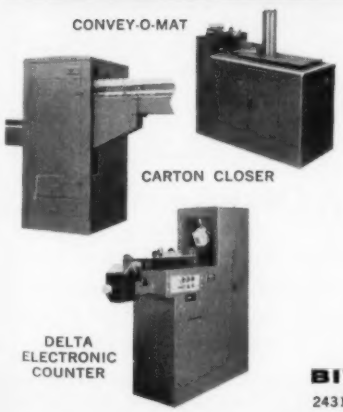
Eliminate Manual Counting and Packaging



...with Integrated Automatic Equipment

Delta high-speed electronic counting machines work with Bivans cartoning equipment to eliminate time consuming manual counting and packaging. With this capable team, you have a fully automatic line capable of packaging as many as 4000 items per minute. The Delta gives you precision counting, quick change-over; Bivans provides a wide range of carton sizes, and quick change-over. Working together, they give you flexibility, simplicity and economy.

Write for complete performance specifications

BIVANS CORPORATION
2431 DALLAS ST., LOS ANGELES 31, CALIF.

DELTA ENGINEERING CORPORATION
126 W. EMERSON ST., MELROSE 76, MASS.

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Post Decitron
electronic products

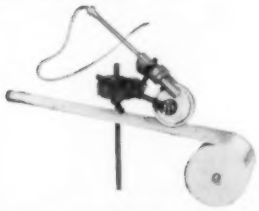
Model SD-1

Versatile, low cost counter — will tabulate up to 50 units per second in continuous operation. Available with totalizer . . . can be placed several hundred feet from switch contacts.

Model P6

Preset electronic counter—up to 5,000 units per second — direct readout totalizer. Will "batch count" any quantity from 1 to 1,000,000. Can be coordinated to secondary circuit for "kicking" devices, etc.

Model LF



Lineal Footage device — can be used with other "Decitron" electronic units to accurately measure and tabulate lengths of wire, rope, sheet stock, paper, cloth, etc. May be used with digital readout printer or visual totalizer on counter.

POST ELECTRONICS
Division of Post Machinery Co.
158 Elliott St., Beverly, Mass.

Decitron

POST ELECTRONICS
Division of Post Machinery Co.
158 Elliott St., Beverly, Mass.

☐ Send literature on Model_____
☐ Please send name of nearest representative

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Company_____
Address_____
City_____ State_____

ent the bottle so that labels are applied in proper relationship to the raised lettering on the glass container.

Electronic Machine Parts, Inc.
Booth: 726 **Hotel: Traymore**
Exhibiting its photoelectric registration control equipment, including a complete line of its units covering applications for intermittent or continuous rotary machines involving localization, spot cutting, or synchronization.

Elgin Manufacturing Co.
Booth: "C" **Hotel: Dennis**
Exhibiting a new fully automatic foil hooding machine, Model H-1, jointly developed with Ekco-Alcoa Containers, Inc. This machine automatically applies and crimps light gauge foil covers to rectangular or round containers.

Eriez Manufacturing Co.
Booth: 229 **Hotel: Shelburne**
Exhibiting its most recent developments in magnetic components for use in conveying and elevating metal receptacles such as cans, packaged materials, etc.; as well as its line of HI-VI vibratory feeders, various models of which have capacities ranging from 1/4 ton/hr. up to 10 tons/hr.

The Exact Weight Scale Co.
Booth: 713 **Hotel: Ambassador**
Exhibiting its mechanical and Shadograph predetermined weight scales, the 610 NW automatic net weighing machine, the 46 NW automatic net weighing machine, the Selectrol Model 1200 automatic checkweigher, its basic weight classifier, and its Model 145 Selectrol.

J. L. Ferguson Co.
Booth: 709 **Hotel: Claridge**
Exhibiting for the first time its new Packomatic automatic case feeder, former, positioner, and loader.

General Packaging Equipment Co.
Booth: 734
Hotel: Marlborough-Blenheim
Exhibiting its new General Automatic Packager which forms, fills, and seals bags from roll stock, heat-sealable materials, as well as other of its packaging items.

Geveke & Co., Inc.
Booth: 425
Hotel: Chalfonte-Haddon Hall
Exhibiting its Hesser packaging machine.

Gisholt Machine Co.
Booth: 737 **Hotel: Shelburne**
Exhibiting for the first time its Sealamatic Jr. automatic neck band ap-

PACKAGING PERFECTION
beyond measure
NIEMAND BROS.
TUBULAR PAPER PACKAGES

There's a difference between NB packages and others you can buy. Sometimes you can't see this difference — or even measure it. But when you put NB packages to work, their finer qualities become something you can measure in dollars and cents of extra sales. Fine base materials, craftsmanship treatment of these materials, and only top-quality standards of manufacture are the basis of this extra performance. And, beyond this, is an unmatched experience in fine package making.

Relied on by manufacturers the country over... frequently specified by product designers—NB packages will lower your costs and speed up sales, all along the line.

When you try them, you'll see the difference. Like to see it today? Write for information!

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Manufacturers of Paper Tube Products
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COLTON

Booth D
P.M.M.E.
Atlantic City

1. NEW Polyethylene Filler and Sealer
2. NEW Blister-Pak Precision Sealer
3. NEW Multiple Tablet Filler
4. Multiple Bottle Liquid Filler
5. Multiple Tube Paste Filler

ARTHUR COLTON CO.
DETROIT 7, MICH.

plying machine, capable of applying automatically pre-cut cellulose neck band seals at speeds up to 85 bottles/min.

Adolph Gottscho, Inc.
Booth: 118, 217 **Hotel: Castle Roc**
Exhibiting its Imagraph wrapping or bag-making machine attachment for automatically applying a four-color Dennison Therimage label to a wrap; Rolaprinter, for over-all printing operations; Markocoder, a conveyor attachment for automatic code dating; and the Rolacoder, a conveyor attachment for in-line code dating or marking of shipping cartons or cases.

Hayssen Manufacturing Co.
Booth: 214 **Hotel:**
Exhibiting two new developments: A polyethylene overwrap machine which will be demonstrated wrapping unsupported envelopes and stationery in a polyethylene overwrap, and a Model G Compak equipped with a potato chip scale feed.

Helix Machine Co., Inc.
Booth: 326
Hotel: Chalfonte-Haddon Hall
Exhibiting its Model A Flexograhic printing press.

Hi-Speed Checkweigher Co., Inc.
Booth: 134 **Hotel: Dennis**
Exhibiting its Model B-100, a 100-lb. bag checkweigher; its Model H-9, a can checkweigher; and Model A-57, a pouch checkweigher, all new devices.

Allen Hollander Co., Inc.
Booth: 234 **Hotel: Shelburne**
Exhibiting its complete line of labels, including gummed, ungummed, greaseproof, insert, pressure-sensitive, heat-sealable labels, tags, and bag tops.

Hope Machine Co.
Booth: 117
Hotel: Chalfonte-Haddon Hall
Exhibiting for the first time its Type 15NH-2, a two-line filling machine, and Type 19A, a four-line filling machine.

International Staple & Machine Co.
Booth: 717 **Hotel: Claridge**
Exhibiting its stapling machines and staples, and its line of Vac-U-Lift equipment.

Island Equipment Corp.
Booth: 'A" **Hotel: Ambassador**
Exhibiting its Styl-O-Vac automatic carton unloader removing glassware from cartons and depositing the glass onto a high-speed Walkie-Pushie unscrambler, which in turn will single-file the glass onto a Styl-O-Matic bottle conveyor. The conveyor will

One Labeler for-

ALL 'ROUND CONTAINER LABELING

Features

No change-over parts
Simple operation
Easy adjustment
Fast cleaning

Terrific for short runs. Puts hand Labeling on Production basis.

GLASS, TIN OR FIBRE

SPECIFICATIONS
Container Size 1½ oz. to 1 Gallon, Label-Spot, Face, or Wrap.

See it at Packaging Machinery & Materials Show Booth 810—Atlantic City
•
National Packaging Show Booth 1110—New York City

LABELETTE COMPANY
2611 W. LELAND AVE., CHICAGO 25
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S·E·A·M·L·E·S·S CANS

MAKE ATTRACTIVE, ECONOMICAL PACKAGES FOR YOUR PRODUCTS

easy-to-use-ship-store

Deep Style 22. Also, Flat Style 12
Lithographed Cans for Tape and Other Products
Flat Style 10 LabelStik. Also, Deep Style 20
Screw Top Style G6
Flange Top Style G3 for hermetic sealing

Some of the many ELLISCO Seamless Cans available are shown. They are **light weight, made of one piece, unbreakable**—ideal for packaging many products, for laboratory use and for handling and storing small parts. Capacities: 1/16 oz. to 16 oz. Also many sizes and styles of seamed cans available. Write, wire or call us with your can packaging problem. Ask for Bulletin 116.

GEORGE D. ELLIS & SONS, INC.
4022 N. American St. Dept. PE-1 Phila. 40, Pa.
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Circle No. 254 on Card

carry the glassware into a Styl-O-Matic powered twister, from which the glassware will enter onto a rotary accumulating table.

The Ivers-Lee Co.
Booth: 811 **Hotel: Shelburne**
Exhibiting material pertaining to its pharmaceutical packaging services.

R. A. Jones & Co., Inc.
Booth: 414 **Hotel: Claridge**
Exhibiting its Model CMV constant motion vertical cartoner and showing in operation its Model CMC constant motion cartoner, which attains speeds up to 300 pkgs./min.

Kaiser Aluminum & Chemical Sales, Inc.
Booth: 426 **Hotel: Dennis**
Exhibiting its newly developed Foil-crimp machine for applying aluminum top sheets to various rectangular aluminum foil trays and containers; the Rotocrimp unit for automatically lidding foil containers; and a line of foil containers and bare and laminated foils.

The Kalamazoo Vegetable Parchment Co.
Booth: 807 **Hotel: Traymore**
Exhibiting its line of waxed papers and genuine vegetable parchment, plain and printed (aniline, letterpress, and gravure—line and process reproductions).

Kidder Press Co., Inc.
Booth: 225 **Hotel: Shelburne**
Company personnel will be on hand to discuss Kidder presses, slitters, rewinders, and other equipment.

The Karl Kiefer Machine Co.
Booth: 701 **Hotel: Dennis**
Exhibiting its Bottoms-Up bottle cleaner, for the high speed inverted air cleaning of new containers; its new Mono-piston filler for semi-automatic filling of glass, jars, tins, or tubes; and its aerosol pressure gassing equipment.

M. D. Knowlton Co.
Booth: 502
Hotel: Chalfonte-Haddon Hall
Exhibiting some of its paper box, paper tube and can, and shipping case machinery.

Labelette Co.
Booth: 810
Hotel: Chalfonte-Haddon Hall
Exhibiting its Model 11A Lab-L-Round labeler and its Model 12A Lab-L-Round labeler.

The Lakso Co., Inc.
Booth: 702 **Hotel: Shelburne**
Exhibiting the latest in its line of high-speed tablet and capsule counting and inspection machines, and the Model 52 cottoning machine.

PAK-RAPID MACHINES AUTOMATIC PACKAGING

AUTOMATION–STANDARD PAK-RAPID AUTOMATIC MACHINES

have attachments and mechanisms available for drawing a vacuum in normal atmosphere with automatic inspection of each package, precise electronic temperature control, automatic parts control interlock system, printing, counting and feeding into package made from roll stock—all in one packaging operation.

PAK-RAPID INC. 1945

West Conshohocken, Pa. • TAylor 8-3511

Midwest office: 131 E. 211th St., Cleveland 23, Ohio
Representatives in all principal cities and in Canada

Controlled PACKAGING

Model AJ-1 PAK KING Automatic: universal-type filler for grated cheese, fine and coarse powders, soaps, cleansers, chemicals and drugs. Ideal for whole and ground spice and for small hard candies. Rated 35 to 70 per minute in a range from milligrams to 1 lb.

See the Model AJ-1 PAK KING on display PM&ME booth 226.

Write for Catalog 55 illustrating this filler and WEIGH RIGHT augers, volumetrics, elevating equipment and coupon inserters.

WEIGH RIGHT Automatic Scale Co.

WEIGH RIGHT AUTOMATIC SCALE COMPANY
JOLIET • ILLINOIS • U. S. A.

For more information circle No. 255 on Card

For more information circle No. 256 on Card

Machinery Service Co.
Booth: 318 **Hotel: Claridge**
Exhibiting its MS combination feeder cleaner, as well as a rotary vacuum filler.

MRM Co., Inc.
Booth: 510 **Hotel: Shelburne**
Exhibiting three filling machines—the automatic 20-spout gravity-vacuum model, its semi-automatic "Universal", and its portable, semi-automatic Model "B", and, in addition, its automatic, continuous motion Model "CM" labeler and the semi-automatic "Uprite" labeler.

Markem Machine Co.
Booth: 525 **Hotel: Dennis**
Exhibiting for the first time its unitized printing heads which will function as an integral part of the manufacturing process, and introducing its Thermomark marking machines using instant drying specialty inks.

Marsh Stencil Machine Co.
Booth: 237 **Hotel: Dennis**
Exhibiting its hand-operated and electric stencil cutting machines; its electric Dial-Taper, a gummed tape dispenser for the shipping room; and its line of stencil machine supplies.

Mercury Heat Sealing Equipment Co.
Booth: 221 **Hotel: President & Ritz**
Exhibiting its Verti Pak machine for forming, filling, and sealing bags of polyethylene; its Vacumatic label sealer which attaches labels to bags and seals automatically; its Strip-O-Matic unit packaging machine (vertical); and its Pouchmaster unit packaging machine (horizontal).

Merrill Machinery Sales Co.
Booth: 718 **Hotel: Shelburne**
Exhibiting two new tablet counting machines, one a small table model that has a production of from 30 to 50 bottles/min. of 100 ct., and the other a high production machine producing 150 to 200 bottles/min. of 100 ct.

Miller Wrapping & Sealing Machine Co.
Booth: 601, 138 **Hotel: Madison**
Exhibiting its Corley-Miller Model MPS wrapping machine, the Model KW Kwik-Wrap sheeter, and the Airtronic polyethylene bag maker.

Milprint, Inc.
Booth: 301 **Hotel: Claridge**
Exhibiting a variety of types of flexible packaging materials and processes, as well as cartons.

National Equipment Corp.
Booth: 429
Hotel: Chalfonte-Haddon Hall
Exhibiting its semi-automatic and its automatic case sealers.

Labeling Lines

by George L. N. Meyer, Jr.

PLANT LAYOUT AND BETTER BOTTLING

How does Plant Layout effect production speeds and bottling efficiencies? Requirements vary, of course, depending upon size and configuration of the existing plant, type product being bottled, speeds, etc. Certain rules of thumb may be used however, which will generally hold true.

STRAIGHT LINE

First, let us consider the advantages of a straight line setup. In addition to providing better housekeeping, this method allows for ease of conveying supplies to the head of the line and following the packaging operation, ease of transferring the package away from the line.

With the straight line approach, when low volume items are to be packed, the operation is easily performed on short lines using semi-automatic equipment. With production speeds in the order of 60 to 300 or more BPM, the straight line arrangement is often preferred in order to prevent jamming or tipping. At high speed, a cross-over is preferred to a dead plate since the container is always moving, eliminating impact. Also, when flexibility is a requisite to varying volumes, this method allows for ready dismantling or shortening.

"U" SHAPE

So much for straight line layouts – now let us consider "U" shape advantages.

Obviously, the "U" shape takes less space. It also shortens the distance that people must travel in getting from one station to another. If you are interested in appearances, the "U" shape can be used to advantage by allowing for separation or covering of operations at the head of and at the end of the line. Operators working within the "U" can attend to more than one piece of equipment at a time. Similarly, set-up mechanics can cover more ground faster.

MULTIPLE FLOORING

How about Multiple Flooring? Avoid this wherever possible. Anytime a production line requires more space for expansion, the use of multiple floors in connection with that line should be avoided.

PLACEMENT

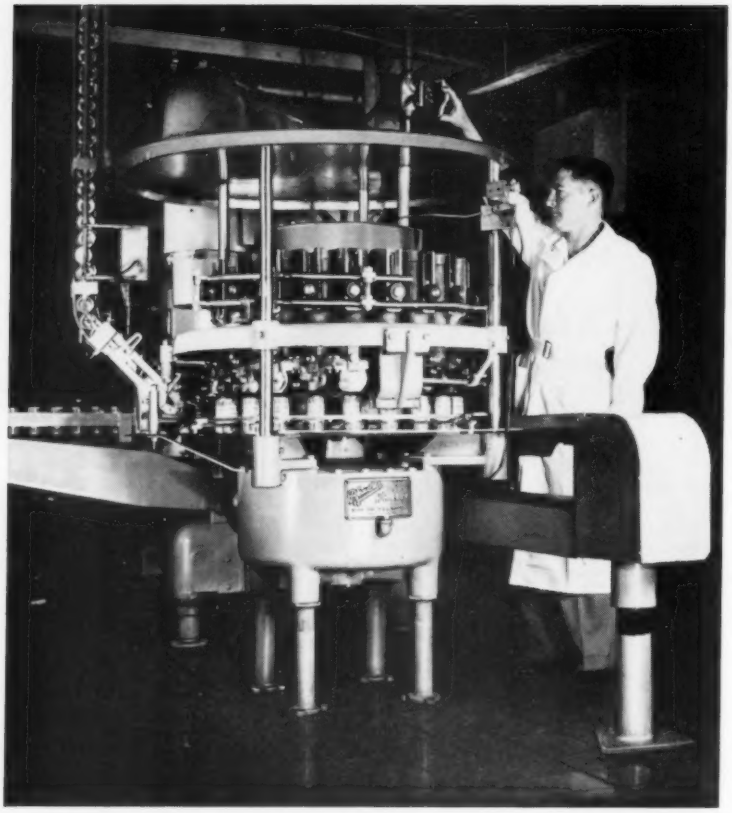
Placement of equipment? Regardless of the shape of the line, packages must be guided and conveyed properly in order to avoid jamming or breakage around the various pieces of equipment. Generally, the distance around each piece of equipment should be a minimum of 3' and more if space is available. If your equipment has a drive shaft, figure out how much room you need in the event you ever must remove the shaft. That dimension could easily add 10' to your clearance requirements. Working heights for conveyor lines are usually standardized at 37" in most industries except Brewery and Beverage, where it is 40 to 46". Uniformity of height should also be arranged wherever possible. If you must go up or down hill the rise or fall should be ¾" per foot (can be 1" per foot on quart size containers).

Synchronization on high speed packaging lines is receiving more and more attention since container control is extremely important at speeds over 120 BPM. It's a subject worthy of a separate article so we'll cover it at a later date in this series.

World's Largest Manufacturer of high-speed Labeling Machinery

WORLD LABELERS

ECONOMIC MACHINERY COMPANY • Worcester 3, Mass. / Div. of Geo. J. Meyer Manufacturing Co.



Just one of many Pfaudler fillers now filling semi-viscous products like frozen citrus concentrate, baby foods, evaporated milk, dog food, apple sauce and also lubricating oils.

Now, accurate fast fill . . . without product spill

Used to be you had to sacrifice *something* to get speed when you filled foods or other products.

With the Pfaudler rotary piston fillers, though, you can choose filler speeds from 40 cans a minute to as high as 1000 cans a minute, and still get the extra features you could expect only on a custom-made machine a few years back.

FEATURES LIKE THESE:

Accuracy to $\frac{1}{10}$ ounce. Rated to fill within specified tolerances—usually within $\pm \frac{1}{10}$ ounce. No container—no fill control on every machine.

Sanitary, easy to clean. One man cleans within 30 minutes, even on largest machines. Slide one-piece valves out. Lift simple, ring-free pistons out. That's all.

Low maintenance costs. Just four primary wearing parts—piston rollers, valve rollers, valve trip cams and wear pads on valve locks . . . each part durable, low cost and easy to replace.

There is a range of five Pfaudler fillers to meet your viscous and semi-solid liquid needs. Write for Bulletin 911 for specifications. For free-flowing liquids, there are the Pfaudler KING FILLERS—Bulletin 843. And for Rotary Piston Oil Filler, write for Bulletin 878.

THE PFAUDLER CO.

a division of PFAUDLER PERMUTIT INC. • Rochester 3, New York

National Flexible Packaging Assn.
Booth: 908 **Hotel:**
Exhibiting about 150 "idea" packages, with individual placards pointing out the unique features of each.

New Jersey Machine Corp.
Booth: 334 **Hotel:**
Exhibiting two dry labeling machines equipped with roll label feeding arrangements, and showing in operation its semi-automatic Pony Label-DRI machine. Also in operation will be the fully automatic Label-DRI Challenger machine, which takes labels in roll form, cuts them, and applies them to bottles at speeds up to 150 bottles/min.

Olin Mathieson Chemical Corp.
Booth: Registration Area
Hotel: Shelburne
Maintaining a message center as a service to those attending the exposition. Telephone, telegraph, message board, and message telephone service available. Purpose of the booth is to receive and transmit messages of those attending the exposition.

Oliver Machinery Co.
Booth: 305 **Hotel: Shelburne**
Exhibiting representative pieces of equipment of its complete line of packaging machinery, as well as a display of roll-type label printings.

Package Engineering
Booth: 904 **Hotel: Shelburne**
Angus J. Ray, publisher; R. Bruce Holmgren, editor; Harry E. Vick, Jr., associate editor; Laurence V. Burton, consulting editor, and Irwin F. Megargee, Eastern manager, will be in attendance.

Package Machinery Co.
Booth: 314, 413 **Hotel: Dennis**
Exhibiting its Model FA-2 polyethylene wrapping machine; its improved Model B Transwrap machine with Model PS-4 net weight scales; Model PAS high speed carton former; and a new standard Forgrove 22-B machine, an English built, high speed precision wrapper with automatic hopper feed.

Packmaster
Booth: 222 **Hotel: Golden Gate Motel**
Exhibiting its Model 50 Packmaster with pusher feeder and addressograph unit for identifying.

Paper Converting Machine Co.
Booth: 517 **Hotel: Dennis**
Exhibiting photographs, brochures, and illustrations on printing presses, rewinders, folders, core machinery, embossers, and special converting equipment.

Paper Machinery & Research, Inc.
Booth: 526 **Hotel: Shelburne**
Exhibiting its Evenflo engraved rolls, No-Flex integral plate cylinders, gravure base cylinders, Micro-Lok demountable plate cylinder, chrome and copper plated rolls, and other equipment.

Peters Machinery Co.
Booth: 501 **Hotel: Dennis**
Exhibiting its new Model SG-P tray and carton forming machine for setting up both polyethylene coated trays and cartons, and regular glue type trays and cartons; its CCY-L carton folding and closing machine for closing lined and unlined hinge cover cartons; its Model UD sheeting and stacking machine for cellophane and other materials; and its Model P-O midget tray and carton gluing and forming machine.

Pneumatic Scale Corp., Ltd.
Booth: 505 **Hotel: Traymore**
Exhibiting its Pneumaclean air cleaning unit and its Model TS-1AF 60 plastic tube filling and sealing machine.

Popper & Sons, Inc.
Booth: 625 **Hotel:**
Exhibiting for the first time its newly developed Perfektum Vialfil Model CF-52OQ, a high speed bottle filler, and in addition, a complete line of bottle washing, tablet and capsule counting, ampul filling and sealing, and vial filling and stoppering machines.

Potdevin Machine Co.
Booth: 310 **Hotel: Dennis**
Exhibiting its Model 83 self-opening square specialty bag machine, as well as a representative line of gluing machines, label pasters, and coating machines.

Pyroxylin Products, Inc.
Booth: 230 **Hotel: Shelburne**
Exhibiting literature and information pertaining to the use of lacquer and hot melt packaging materials.

F. B. Redington Co.
Booth: 514, 518 **Hotel: Dennis**
Exhibiting three or four packaging machines, which are new developments.

Resina Automatic Machinery Co., Inc.
Booth: 613 **Hotel: Shelburne**
Exhibiting two automatic capping machines, the high speed RU-120 and the Resina single head screw capper, as well as its SA plastic fitment applicator.

Reynolds Metals Co.
Booth: 313 **Hotel:**
Exhibiting for the first time its foil

USERS EXPERIENCE SHOWS:
3 ways you can profit with Elec-Tri-Pak Automatic Weighers
The experience of these three satisfied Triangle users point out the basic reasons why so many leading packagers rely on Elec-Tri-Pak. Here are three features *any packager* should look for and *buy* in net weight fillers:
WHITE HOUSE wanted accurate filling and gentle handling.
Elec-Tri-Pak weighs and fills delicate instant dry milk at guaranteed accuracy of ± 1/32 oz. on 85% of packages and ± 1/16 oz. on 97%. *White House Milk Co., Manitowoc, Wisconsin.*
CHASE wanted versatility.
Elec-Tri-Pak flexibility and ease of changeover permits them to handle as many as 50 to 60 different confectionery items on one machine. *Chase Candy Co., Chicago, Illinois.*
KELLOGG wanted speed. High speed weighing and filling of a difficult-to-handle product were the *Kellogg Company's* prime requisites for net weight scales on their new T-BONE packaging line. *The Kellogg Company, Battle Creek, Michigan.*
Whether you're filling candy or peanuts, noodles, marbles or insecticides, Triangle has the machine and the know-how to put *profit first* in your packaging picture. Write for details.
Ask about the deferred payment plan.
GRO-PUP
T-BONE
TOY KIT
You can count on TRIANGLE for EXPERIENCE
TRIANGLE
See you at PMME, Atlantic City
6641 W. Diversey Ave., Chicago 35, Ill.
TRIANGLE PACKAGE MACHINERY CO.

For more information circle No. 258 on Reader Service Card

ELIMINATE SHIPPING CONTAINER FAILURES!

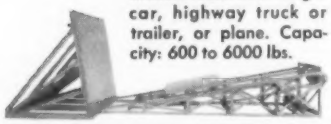
DISCOVER "WEAKLINGS" BY PRE-TESTING *with*

GAYNES MODERN "TORTURE-TRIO"

Here is a complete testing laboratory that will save you thousands of dollars every year! Gaynes National Safe Transit approved and unconditionally guaranteed equipment reveals weakness or proves strength of your shipping containers.

INCLINE-IMPACT SHOCK

Gaynes INCLINE-IMPACT (Conbur) TESTER duplicates actual impact punishment received in freight car, highway truck or trailer, or plane. Capacity: 600 to 6000 lbs.



NEW! COMPLETELY ENCLOSED BARRIER-BACKSTOP CONBUR TESTER

CEASELESS VIBRATION

Gaynes VIBRATION TESTER precisely duplicates rough-road jolting, smooth highway runs, freight car "jitter" or other vibration motion. Capacity: 50 to 6000 lbs.

2-YEAR UNCONDITIONAL GUARANTEE

NEW! 50 & 100 lb. PARCEL PROVER for testing parcel post-size containers

DROP-TESTING SHOCK

Gaynes AUTOMATIC DROP TESTER delivers broadside, edge or corner blows from drop heights up to 60 inches. Capacity: 1 to 125 lbs.

NEW! 300 lb. AUTOMATIC DROP TESTER

NEW! 7' and 14' DRUM TESTERS

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WRITE TODAY FOR COMPLETE BROCHURE

America's Foremost Manufacturer of Package Testing Equipment
GAYNES ENGINEERING CO.
1644 W. Fulton St. • Chicago 12, Illinois

laminated cartons, as well as a complete line of aluminum containers and other aluminum foil packages, including Reyseal overwraps, pouches, Clo-Can, and Cass-Rol Pak.

Riegel Paper Corp.
Booth: 806 **Hotel: Shelburne**

Exhibiting a complete line of protective packaging materials including glassine, greaseproof, Pouch-Pak, and tailor-made combinations of paper, film, and foil.

Scandia Manufacturing Co.
Booth: 409
Hotel: Chalfonte-Haddon Hall

Exhibiting a high speed fully automatic bundling machine, Model SMS-4L; a high speed fully automatic wrapping machine, Model SFS-6; two fully automatic bundling and wrapping machines, Model "100"; a semi-automatic wrapping machine, Model SUS-7, using heat sealing cellophane; and a turret typed fully automatic wrapping machine, with electric eye and opening tape using printed cellophane.

G. T. Schjeldahl Co.
Booth: 101 **Hotel: Claridge**

Exhibiting its Model 240 twin polyethylene bag making machine by means of films and literature.

Schooler Mfg. Co.
Booth: 633, 637 **Hotel:**

Exhibiting its semi-automatic wrapping machine and its new fully automatic Model S-2 with automatic infeed.

Schroeder Machines Corp.
Booth: 325, 329
Hotel: Chalfonte-Haddon Hall

Exhibiting its Quadnumatic unit which automatically selects a case from a stack, opens and forms it, accumulates the entire load of contents, glues, and seals it; the Formnumatic, which automatically opens and forms the case; and the Casealer, a pneumatically operated unit for manual packing of the case within the machine.

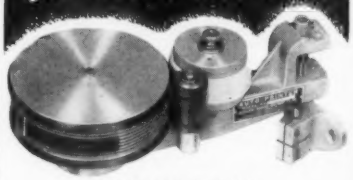
Shopsin Paper Co.
Booth: 626 **Hotel: Ambassador**

Exhibiting a new line of polished Bright Silver and Bright Gold colors laminated to paper backing, and many other foil laminations suitable for boxes, displays, packaging, sealing, and labeling.

The Simco Co.
Booth: 529 **Hotel: Shelburne**

Exhibiting its static eliminators of various types for all converting and packaging machinery, and showing

Want to save on marking? dating? coding? your best choice is the



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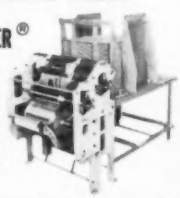
WHIPPET MARKER®!

Industrial's WHIPPET Marker is the answer to fast, economical in-plant imprinting of bags, cartons, boxes, rolls, cans and the like. Friction motivated, it takes speed from and is controlled by your conveyor line operation. You mark containers as you use them, during production runs. Self inking, and using easily interchanged rubber type, the WHIPPET is solidly built to give years of trouble-free service. Easily installed out of the way on your present production line, it will quickly repay its original cost in extra savings and performance.

Write for complete details and new catalog today. Dept. PE

other INDUSTRIAL units include:

#7 AUTOPRINTER®
—for automatically imprinting cartons and multiwall bags at production speeds up to 3,000 per hour.



RAINBOW Trans-leaf Coder®
— for automatically marking any material that takes hot dye transfer impressions.

SPECIALS — Our Specialty. We make and supply all types of special marking equipment, custom designed and built for your individual needs.

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company, inc.
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GET HIGH-SPEED, UNINTERRUPTED STITCHING WITH MID-STATES

Mid-States Stitching Wire gives you frictionless, uniformly smooth flow . . . off the coil and through the stitching head . . . to assure high-speed, uninterrupted operation.

Available in 5, 10, 25 and 50 lb. coils. All standard gauges. Special gauges on request. Galvanized and copper-coated finishes.

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STEEL & WIRE COMPANY
Crawfordsville, Indiana • Jacksonville, Florida

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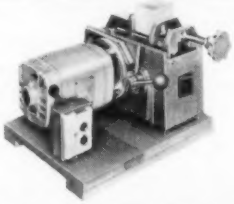


CODEDGE

WILL CODE
OVER 2000 LABELS PER MINUTE

Save TIME and MONEY with CODEDGE—the newest concept in Label Dating and Coding control. Used Internationally, in over 50 countries, CODEDGE is in service with a rapidly growing list of America's leading firms.

PAYS FOR ITSELF . . . AGAIN and AGAIN

CODEDGE can solve YOUR label problems!

Booth 209 PM&ME EXPOSITION
Atlantic City, N. J. March 25 thru 28, 1958
WRITE TODAY for detailed facts—

GRIFFIN-RUTGERS, INC.
Department PE3, 41 East 42nd St.,
New York 17, N. Y.

Circle No. 262 on Card

for the first time its new Anti-Static devices for cleaning, particularly the Neutro-Stat air gun, a hand-held compressed air gun.

Simplex Packaging Machinery Div. of Food Machinery & Chemical Corp.
Booth: 605
Hotel: Chalfonte-Haddon Hall

Exhibiting in operation the Model No. 300 cellophane bag making machine, which attains speeds of from 200 to 300 bags/min. from printed roll stock.

Standard-Knapp
Booth: 306
Hotel: Chalfonte-Haddon Hall

Exhibiting the recently developed Emhart bacon line which takes sliced bacon and automatically registers it on paperboard, weighs the package, indicates needed corrections in terms of a fraction of a slice, and conveys the package to correct stations and then to flap-folding stations.

Stanford Engineering Co.
Booth: 201, 205 Hotel: Ambassador

Exhibiting various web guides, slitters, and constant tension unwind equipment.

E. G. Staude Manufacturing Co., Inc.
Booth: 102 Hotel: Shelburne

Exhibiting its Vue-Matic, its 32" Marquette slotter, and its Universal Thermo-Quad stayer machines.

Stein, Hall & Co., Inc.
Booth: 722 Hotel: Ritz-Carlton

Exhibiting packages sealed with various adhesives, including hot melts, resins, and vegetable adhesives.

Stokes & Smith
Booth: 601, 602, 605, 606
Hotel: Chalfonte-Haddon Hall

Exhibiting its new automatic check weigher; its Stokeswrap automatic machine for forming, filling, and heat sealing flexible film, foil or paper; its Universal EG filler; the Campbell wrapper, for single and multiple unit packaging; the Simplex "30" high speed polyethylene bag maker; the Sure-Way caser; and the SIG automatic foil machine for wrapping individual pieces of candy.

Swift & Co.
Booth: 417, 421 Hotel: Shelburne

Exhibiting samples of its newest adhesives for waxed and dewaxed stock and for the new films and foils.

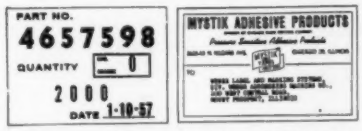
Syntron Co.
Booth: 208
Hotel: Ambassador or Ritz-Carlton

Exhibiting its high speed vibratory bulk materials handling feeders with

Cut costs on label printing and eliminate inventory problems

New Weber Dual-80 Label Printing Machine prints product and content identification labels at 105 a minute.

- Variable data can be changed at any time quickly and easily
- Dual-purpose—prints from rubber mats and stencils
- Completely automatic
- Cuts labels to size and keeps accurate count
- No bigger than an electric typewriter



DUAL-PURPOSE, the Weber Model 80 Label Printing Machine, will print from Weber stencils as well as rubber plates. Printing head and ink fountain are quickly and easily detached without tools and stencil drum is substituted for printing shipping labels, packing slips and other small multiple forms.

Write for your **FREE** copy of our new Model 80 Bulletin which describes this unit in detail

Weber

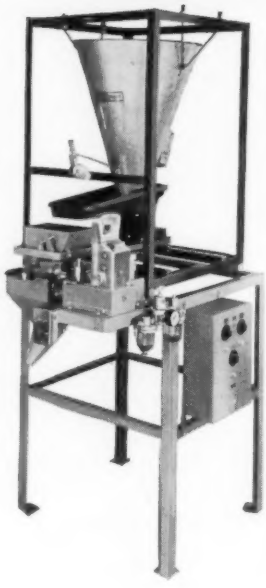
WEBER MARKING SYSTEMS
Dept. 24-C
Division of Weber Addressing Machine Co., Inc.
Mount Prospect, Illinois
SALES AND SERVICE IN ALL PRINCIPAL CITIES

Circle No. 263 on Card

PROTECT YOUR PROFIT MARGIN

Save production costs

. . . eliminate overweights



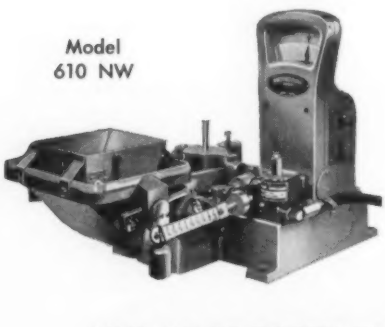
EXACT WEIGHT Weighing Machines offer you these important features:

- **Precision industrial-type scale.**
- **Over-under indicator for visual check to eliminate need for separate checkweighing operation.**
- **Calibrated adjustments with counter-weights of known value, graduated beam; poise and scale indicator.**
- **Design backed by more than 40 years of experience in specialized weighing equipment.**
- **Readily accessible service and maintenance facilities.**
- **Performance guaranteed in writing.**

This EXACT WEIGHT Automatic Net Weighing Machine weighs and packages dry free-flowing materials. Its fast and accurate operation speeds production . . . cuts production costs. It provides a constant and visible check on every package weight and eliminates overweights . . . protects your profit margin. Ruggedly built and backed by over 40 years of experience in specialized weighing, EXACT WEIGHT Weighing Machines give trouble-free service with maintenance costs at a minimum.

Model 620 NW has a rated capacity of 10 lbs. and Model 610 NW has a 3-lb capacity. Write for Form No. 3311.

Model
610 NW



AUTOMATIC NET WEIGHER

The Net Weigher, left, can be supplied without the feeder machine, support frame and discharge chute. This unit may be adaptable to your specific application.

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ATLANTIC CITY • MARCH 25-28

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BETTER QUALITY CONTROL . . . BETTER COST CONTROL

automatic operational sequence of fast feed, slow feed, and shut off, in operation; and an operating display of its vibratory parts feeders with gravity feed track.

The Trescott Co., Inc.
Booth: 630 Hotel: Carole Apartments

Exhibiting its Trescomatic weighing and filling machine, a one-by-one feeder, and a Tresnik completely automatic weighing, filling, and packaging machine.

Triangle Package Machinery Co.
Booth: 317
Hotel: Chalfonte-Haddon Hall

Exhibiting its Model DS1 single line automatic filler for the handling of dairy products, prepared foods, salads, and similar viscous products; showing for the first time its bag making, filling, and sealing machine; and a new scale feed, also being shown for the first time, which works in synchronization with the Elec-Tri-Pak net weighers.

Union Bag-Camp Paper Corp.
Booth: 610 Hotel: Shelburne

Exhibiting a new machine, the Union K & M Industrial Bagger, that will automatically package products such as comic books, and hard-to-package items such as dry ice.

United Shoe Machinery Corp.
Booth: 218
Hotel: Chalfonte-Haddon Hall

Exhibiting several new pieces of equipment for applying its Thermogrip hot melt adhesives. Shown in operation will be a Thermogrip applicator with a nozzle type application; a similar unit for straight line gluing will be on display, as well as two other new units for applying adhesives and the Boxmaster carton forming machine.

United States Automatic Box Machinery Co., Inc.
Booth: 433
Hotel: Chalfonte-Haddon Hall

Exhibiting its latest model high speed Brightwood box machine, Model CM-2, in operation.

U. S. Bottlers Machinery Co.
Booth: 333 Hotel: Shelburne

Exhibiting in operation its Model S12 Sanitair, a completely automatic rotary air cleaner. This machine is engineered with twelve duplex heads for a capacity up to 250 containers/min.

Vertrod Corp.
Booth: 812 Hotel: Shelburne

Exhibiting its thermal impulse heat sealers and trim sealers, and its new

high speed trim sealer with scrap blow-off.

Walton Laboratories, Inc.
Booth: 121 **Hotel:**

Exhibiting several types of humidifiers, including ceiling suspended models useful in moisture conditioning the air in a small zone or in a complete factory type area in order to minimize static and to prevent drying out of fibrous type products, and its Web Wetter, which exposes a section of moving web to a uniform blanket of cool moisture particles.

H. G. Weber & Co., Inc.
Booth: 801 **Hotel: Shelburne**

Exhibiting its polyethylene bag machine, a completely new high speed poly bag unit, and its turret type bag feeding, opening, filling, and sealing machine.

Weigh Right Automatic Scale Co.
Booth: 226 **Hotel: Shelburne**

Exhibiting its Model A semi-automatic filler, the Model S coupon inserter, the Model B-1B net weigher, and the automatic Model A-1 Pakking automatic for spices, grated cheese, and powders.

Wolverine Paper Converting Machinery Corp.
Booth: 634 **Hotel: Ambassador**

Exhibiting large, blown-up photographs of its various presses.

The Woodman Co., Inc.
Booth: 804
Hotel: Chalfonte-Haddon Hall

Exhibiting a new table model net weigher, the Econo-Weigh, designed to handle dry, free-flowing products such as candy, peas, beans, nuts metal parts, etc.

Wrap-Ade Machine Co., Inc.
Booth: 633, 637 **Hotel:**

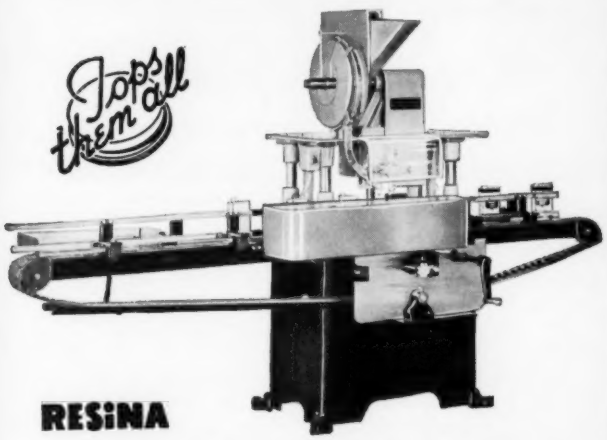
Exhibiting its Model UPC adjustable unit packaging machine which is a horizontal conveyor fed machine that forms packages from 2-1/2 in. square up to 6x12 in., and the Model K unit packaging machine designed for high speed packaging of powders and granular materials.

Wright Machinery Co.
Booth: 402
Hotel: Chalfonte-Haddon Hall

Exhibiting for the first time a pilot model of its new high-speed net weigher using electronic weighing elements for free-flowing products and a high-speed electronic checkweigher weighing in motion at speeds in excess of 100/min., and showing for the first time at a PMME show its Wright Junior Weigher.

RESINA
CAPPERS
a model for every purpose . . . a speed for every need!

NEW! INNERSEALER



RESINA

Automatic innerseal machine for selecting and applying standard innerseals to various types and sizes of tin cans as commonly used in the oil industry.
Capacity: 60-120 per minute
Seals from ⅛" to 1½".

AND SPECIAL MACHINERY

Agents in principal cities throughout the United States and Canada.

Write for descriptive literature

RESINA
AUTOMATIC MACHINERY CO., INC.
Brooklyn 31, New York

Visit us in booth No. 613 at the P.M.M.I. Show.

NEW BLISTER-PAK SPEED RECORD
by COLTON
LOW-COST MACHINE

1. 48 packages per min.; highest speed on record.
2. Low first cost.
3. Low operating cost, no special skill needed.
4. Low running cost, air-powered from 40 psi line. (Optional motorized air unit available.)
5. Sealing pressure 800 lbs.
6. Adjustable dwell time.
7. Adaptable to heat sealing.
8. Needs only 2' x 4' floor space.

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ARTHUR COLTON COMPANY
DIV. SNYDER TOOL & ENGINEERING COMPANY

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Cost Savings by BOXMASTER

If you put your product in a box, need less expensive packages, stronger boxes, better stackability, production line packing and up to 90% space savings, then you need Boxmaster. It's an increasingly popular machine for in-plant box forming, that can help meet all these needs with practically no investment on your part. See it at Atlantic City, March 25-28, or write now for complete data.

See us at booth No. 218
The PACKAGING MACHINERY & MATERIALS EXPOSITION
MARCH 25-28, 1958
CONVENTION HALL ATLANTIC CITY

THERMOGRIP
for adhesive problems

New applicators make high-strength, hot-melt Thermogrip adhesives in cord-like form practical for a greatly expanded list of packaging operations. Easily attached to machines processing either continuous webs or intermittently passing units. See them at the Package Machinery and Materials Exposition or write for complete data.

United SHOE MACHINERY CORPORATION
140 FEDERAL ST., BOSTON, MASS.

Developing facilities for sterile products packaging

(*Continued from Page 32*)

is often said that the costs of aseptic filling are higher. Superficially this appears to be true, but we think other considerations offset this.

Use Single Procedure

Our sterile products department produces injectible and ophthalmic products. Even if not sterile, these would have to be free of contaminating physical materials. Therefore, we should need to provide an environment to prevent microbial and physical contamination. The methods used in attaining these are so much alike that we process everything as though it were a heat-sensitive material—whether or not this is actually the case. As a result, we have one general operating procedure. At the completion of the filling stage, everything turned out has been processed under aseptic conditions.

Final sterilization of packages. We take those products that are not heat-sensitive and sterilize their filled and sealed containers in an autoclave or in a dry-heat oven. This is done even though the items have been through an aseptic operation. We believe that the best method of sterilization is that which takes place on the final filled and sealed container.

An important feature of any sterile packaging operation is the careful scheduling and coordinating of product and material movement. The handling of containers, preparation of product, filling, and other operations such as the various inspections (see Fig. 6) are handled on a simultaneous basis so that everything meets at the packaging line when and as needed.

Results And Plans

It is our feeling that there is room for a lot more standardization of packaging techniques and equipment. For example, we had the problem of getting trays to handle vials. These trays had to be so constructed that vials would

not tip over. (See Fig. 7) We worked out a design and have had a seamless drawn tray produced. If other companies in our field could standardize on this design of tray, industry production costs would go down. (E.g., the price for these trays would be cheaper than that presently quoted to us, if even a portion of our industry used such standardized trays.) This is just one example of the benefits inherent in standardization.

We have developed a coding device for use on vial and bottle sealing equipment. (See Figs. 8 and 9) This puts a batch number on each seal. It attaches to the sealing unit so that the application is on the top of each seal. This is a protection against counterfeiting. We apply the mark simultaneously with the application of the seal to the container. No additional labor or cost is involved other than the cost of the coding device.

Protecting intact packages. The way the impression is made is such that it cannot be tapped in with a hammer or other manual means. Presumably a counterfeiter could duplicate exactly what we have, but would necessitate a machine operation. We think it unlikely that a pharmaceutical counterfeiter would go to the trouble of mechanizing his work. However, our doing this gives us a batch number identification that furnishes a distinct assurance against mix-ups, tampering, counterfeiting, and the like. In this way we protect the sterility of the packages for which we have worked so long and diligently to provide sterile packaging facilities.

Reviewing the major accomplishments of our sterile packaging operation, we find that our direct operating charges are definitely on the way down. We are getting a higher output per direct labor hour. We have an improved yield with fewer rejects. We can handle larger batches and do them more economically. To summarize our major advantage: We have improved our production at lower direct cost.

YES We'll be there — See us at booth #213

Jar Cleaner

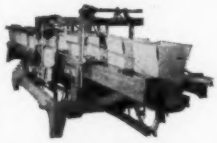
Air—Water—Steam—Cleaning Line
Wide mouth jars—
Many type bottles—
Cans—Aerosol cans

Write for bulletin PE-1493

V Labeler

For Glass—Cans—Aerosol cans
Long-neck bottles—Jugs—
Cans with bale ears

Write for bulletin PE-1580



Glver-Sealer

Flap preheaters—Controlled
jet glue applicators—Visible
glue supply

Write for bulletin PE-1498

INVESTIGATE NEW-WAY—Learn ALL the unusual features at the Packaging Exposition

The Best IN LABELING AND PACKAGING *Equipment*

Chisholm-Ryder
COMPANY OF PENNSYLVANIA
HANOVER, PENNSYLVANIA

The PACKAGING MACHINERY & MATERIALS EXPOSITION
MARCH 25-28, 1958
CONVENTION HALL ATLANTIC CITY

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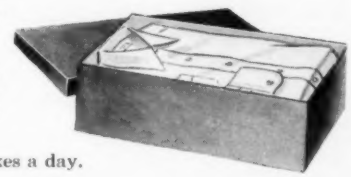
***Boxmaster* cost savings for...** **SHIRTS**

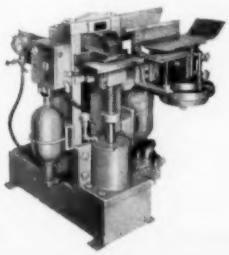
"Less costly box handling, saves space and several cents per box!"

A leading manufacturer of shirts found he could reduce storage space, and substantially reduce costs when he changed to setting up his own boxes with Boxmaster.



Data: 4 shirts per box; 3000 boxes a day.

Report: Semi-Automatic operation.
Uses flat, die-cut blanks — forms a rigid, glued-up box.
"Gain by less costly handling of incoming boxes, save space and several cents in actual cost of boxes (finished). Boxes always there. Less frequent ordering."



Total savings after all costs averaged $60.00 a day!

Whatever your product, if you put it in a box and now use 800 to 10,000 boxes a day — you should look into *Boxmaster*. Send for complete data, today.

United
SHOE MACHINERY CORPORATION
140 FEDERAL ST., BOSTON, MASS.

"TELL-ALL" PACKAGING! Thilco Specialty Bags prove the most simplified, convenient, low cost means for packaging Bon-Dee metal sink frames. Practical in more ways than one, because there is ample space for installation instructions and sales copy where you want it— on the *package that carries the product!*

This manufacturer precautions against loss of separate instruction sheets. Complete details for mounting this bicycle basket are imprinted right on the face of the parts bag and a good selling point is the picture showing how easily the job is done — A bag package that combines functional purpose with service and advertising value.

A producer of window units found that packaging the hardware parts in cartons was all too costly. Thilco created a low cost, tough and durable Specialty bag that not only safely packages the parts but also features detail drawings and assembly instructions. Costly, separate instruction sheets were eliminated entirely.

THESE THILCO FUNCTIONAL BAGS SOLVE TOUGH PACKAGING PROBLEMS

. . . save users thousands of dollars in costly packaging and sales literature!

There's a big swing to Thilco SPECIALTY Bags in packaging and it's easy to understand. As these typical examples testify, Thilco Bags serve multiple functions with resultant effective economies.

Thilco Specialty Bags are almost unlimited in packaging scope. EFFICIENT . . . they simplify many packaging operations — require less storage space than other type containers — and also simplify inventory control in unit packaging. VERSATILE . . . they are available in numerous paper grades and duplex combinations to meet most any functional requirement. PRACTICAL and ECONOMICAL . . . they combine product with allied literature into one package unit at a minimum of extra cost.

Investigate Thilco SPECIALTY Bags today. More than likely their wide range packaging possibilities will amaze you.

Write for Free Samples and Specifications Kit

The manufacturer of Penthouse products packages a large, closet garment bag in this Thilco Specialty bag. Complete instructions for product assembly are imprinted on the face of the bag and the remaining space utilized for advertising other allied products in the line.

THILCO *FUNCTIONAL PAPERS*

THILMANY PULP & PAPER COMPANY • KAUKAUNA, WIS.

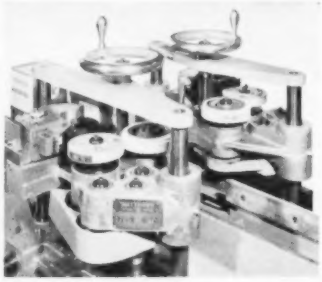
OFFICES IN: NEW YORK • CHICAGO • DETROIT • CINCINNATI

Announcements of machinery and products

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card – we pay the postage.

Offset Printing Unit

Jas. H. Matthews & Co. announces the development of a dual offset printer designed to imprint information on two sides of moving flat containers. The containers can be marked either before or after filling and data or imprint information can be changed from time to



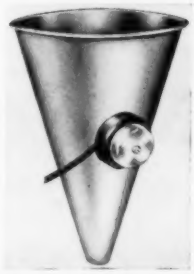
time as necessary. The two offset printing heads are adjustable vertically and horizontally to accommodate a variety of container sizes. A chain conveyor is used to carry the containers through the printer at speeds up to 75/min. Circle No. 1

Fresh Meats Packaging Material

Olin Mathieson Chemical Corp.'s Film Div. announces Olin OF-16, a cellophane especially designed for the packaging of fresh meats. The problem in meat wrapping is to permit oxygen to reach the meat as quickly and as uniformly as possible. Oxygen is supplied to the meat when the underside of the cellophane becomes moist. Olin OF-16 is said to absorb moisture four times faster than conventional fresh meat cellophane, permitting oxygen to reach meat more quickly. The new film also has non-blocking characteristics which make it easy to slip a sheet from stock, Olin says. Circle No. 2.

Electromagnetic Vibrator

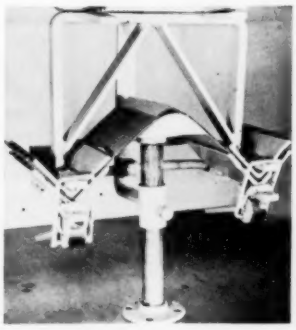
Syntron Co. has a new, small Model V-2 electromagnetic vibrator developed to help control the vibration of diminutive dispensing hoppers and parts-feed tracks on packaging machines. The Model V-2 weighs 2 lbs., is 3″ in diameter,



and 2-1/2″ high. It operates at 7,200 vibrations/min. from 115 volt, 60-cycle a.c. The vibration can be controlled by (1) mechanical adjustment, (2) a separate rheostat control box, or (3) a separate rheostat and rectifier control box, which operates the vibrator at 3,600 vibrations/min. with more power and amplitude. Circle No. 3.

Joint Tester

Testing Machines, Inc., announces the Bathurst Manufacturer's Joint Tester, a device developed for use



in determining the strength of the manufacturer's joint in corrugated containers. The tester exerts a force upon the manufacturer's joint similar to that experienced by the container when actually carrying a full load of canned goods. A 6″ wide sample of the

Post Decitron
electronic products

Model SD-1T

This *new* Post electronic counter outmodes all mechanical counters. Capable of operating at speeds up to 100 units per second, a single "count" is indicated on the six digit totalizer as each *tenth* item breaks the light beam. For counting dozens or gross a 12 place counting tube can be substituted. May be operated from microswitch, photohead or Post magnetic switch.

Standard SD-1T **$140.00**

Model SD-1

Same as above, without totalizer. Boosts service life of mechanical registers 15 times by counting in units of 10. Can be placed several hundred feet from switch contacts.

SD-1 ..... **$98.00**
With Remote Totalizer **$125.00**

Model MH-2

Magnetic Switch . . . high speed — ideally suited to sensing applications — will actuate electronic counters, mechanical counters, controls, solenoids, relays and many other circuits. Capable of speeds up to 100 cycles per second. Long service life.

Feature . . . sharp, clean make or break — no lag, no bounce.

Thousands in use **$29.75**

POST ELECTRONICS
Division of Post Machinery Co.
159 Elliott St., Beverly, Mass.

Decitron

POST ELECTRONICS
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☐ Send literature on Model_____
☐ Please send name of nearest representative

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Company_____
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manufacturer's joint is normally tested, and this tester is used in conjunction with the compression tester. Circle No. 4.

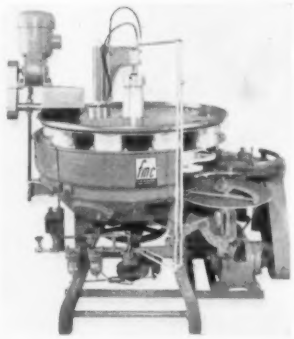
Blister Packs Assembler

Arthur Colton Co. has designed an index-type, high-speed machine that assembles blister packages at rates up to 48 pkgs./min. This air-

powered, automatic machine glues the blister package together. Similar machines for heat-sealing the packages are also available. The machine has a 42" diameter index table powered by an air cylinder index mechanism. Six rubber dies are mounted on the table. An air-powered arbor press is mounted on the base of the machine at station six. The machine operates on a 40 psi line pressure. Circle No. 5.

Pressure-Pack Filler

Food Machinery and Chemical Corp.'s Canning Machinery Div. announces the development of the FMC Press-Pack Filler. This new



filler employs a mechanical plunger operating at 400 lbs. pressure, that automatically presses the product into the container. The

WHIZ-LIFTER
MATERIALS HANDLING EQUIPMENT

Give your product a lift with a

WHIZ-LIFTER
MATERIALS ELEVATING MACHINE — Assures speedy, automatic bulk product elevating into hopper of a weighing or filling machine without danger of spillage or breakage! Will handle drugs, hardware, pharmaceuticals, plastics, chemicals, etc., with trouble-free efficiency.

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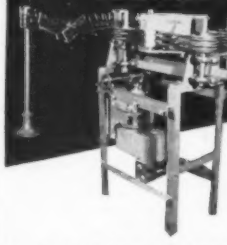
Designers and manufacturers of • Volumetric and Net Weighing Machines • Parts Handling Equipment • Rotary Filling Machines • Conveying & Elevating Equipment

Circle No. 272 on Card

Styl-O-Matic®
POWERED TWISTER
NEW!



TURNS 60 to 180 bottles per minute 270° or 360° to empty foreign matter. Hold containers upside down for approximately 18" for air cleaning if so desired. Overall length of unit 8' 8" – 32" for the powered section and 6' for the twister. Easily changed twister permits use for various size containers.

MAIL THIS COUPON FOR FULL DETAILS

ISLAND EQUIPMENT CORP.
27-01 Bridge Plaza North
Long Island City 1, N. Y.

Please send Bulletin SPT-1 giving details on the Style-O-Matic Powered Twister.

NAME_____
ADDRESS_____
CITY_____ STATE_____

Visit us at Booth A, PMM SHOW, Atlantic City

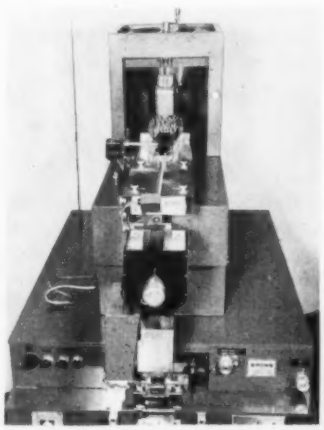
device ensures adequate volume to provide accurate fill weight. Using adjustable telescopic pockets, the machine permits filling a required volume which is greater than the can. The automatic hydraulic plunger leaves a uniformly filled can when released. On No. 10 cans, speeds range from 20 to 35 cans/min., depending upon the product being packaged. Speeds up to 120 cans/min. can be attained when smaller cans are used. Circle No. 6.

Skin Packaging

Print-A-Tube Co. has a new skin packaging process which requires no special coating or perforating of the package board. Packaging film P.O.M.V. (Poly-on-Mylar Vacuumized) is used in this process. Since coatings are eliminated, there is no oxidation or discoloration of stored boards, Print-A-Tube says. Boards can be printed and held until ready for use. P.O.M.V. film may be produced in thin gauges of .001" and .0025". Utilizing simple machinery, the process involves placing the board on a porous bed with the articles to be packaged positioned on the board. A heater system and a vacuum pump, plus a frame, are used to lay the film over the items on the board. The film is then heat sealed directly to the board. Since the board remains porous, the vacuum is drawn directly through the board, pulling the film tightly about the objects being packaged. Circle No. 7.

Counting Head

Brown Filling Machine Co., Inc., has developed the Delta head for use with its Hardware Formapak machine. This counting head was



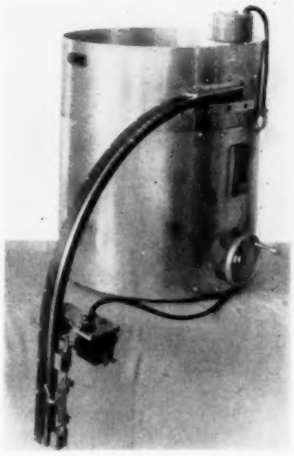
specifically designed for the counting and packeting of irregularly-shaped hardware items which are difficult to orient for counting. The Delta head has a feed rate of 120 ft./min. A one-revolution clutch keeps the packeting cycle in synchronization with the feeding and counting operation. The packet is not formed until a complete quantity of units has been delivered to the forming plunger, thus preventing short counts. Circle No. 8.

Aluminum Can Styles

Continental Can Co. has a variety of aluminum containers available to packagers. Among the styles currently offered are a round, two-piece, drawn can; a three-piece, open top, cemented side seam can; an extruded can so constructed that it can either take a cup and valve (for use as a purse size aerosol can), or can be made to accommodate a slip cover; and a round, larger-size extruded aerosol can. Also available is a flat can with a drawn, oblong, hinge cover and a flat, drawn, two-piece rectangular can. Circle No. 9.

Parts-Feeder

U. S. Engineering Co. announces the Disc-O-Matic, a parts-feeder used to orient, feed, and count a variety of shapes at high speeds. The Disc-O-Matic machine consists of a flat rotating disc which utilizes centrifugal action to discharge parts in an oriented manner at high speeds. A variable speed drive provides either fast motion for high-speed feeding and counting or a very slow motion for extremely gentle handling of delicate parts. The discharge track can be horizontal or curved into

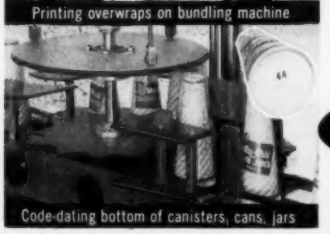


the vertical. The Disc-O-Matic is about 18" in diameter and 20" high. Circle No. 10.

Imprinting code dates, other copy on wrappers

Marking cases during sealing or conveying

Printing overwraps on bundling machine


Code-dating bottom of canisters, cans, jars

For new money-saving package imprinting and coding ideas... visit Gottscho at the PM&ME Atlantic City, March 25-28

BOOTH 118-217

See the new forward-design Gottscho package imprinters — now re-designed for improved functional performance

Find out how to save money by

... reducing labor costs
... cutting package inventories
... printing your own package wraps
... eliminating label and labelling costs
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Bring along your package-imprinting problems and discuss them with our factory representatives... or write to...

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One operator turns out 45, 50 or more complete packages per minute with this simple-to-operate, efficient cartoner, yours at low cost.

You've never seen a cartoner like this one before...!

Now, just *one* compact, efficient machine—with just *one* operator, will give you 10,000—15,000—18,000 finished packages a day. You waste no plant space, carry no extra investment burden for multiple machine units, to get the production boost and the cost cuts made possible by REDINGTON's *entirely new* "Automax" Cycle Cartoner.

For a main product, supplementary items, special sizes, introductory and sample packages, fill-in runs—if you package in reverse tuck folding cartons, the "Automax" does the *whole packaging job.*

Remember, with only one operator you'll be getting a volume it takes two, three or more to produce manually. In plants where this new REDINGTON is already in daily production, it is turning out a steady 40 to 45 packages a minute, all day long.

The "Automax" is highly efficient yet simple in design. Any girl can learn how to operate it in far less time than it takes to train workers for manual packaging. In addition to keeping the carton magazine filled, she performs just two actions: she places an item to be cartoned in each of three loading troughs in front of her—then pushes the slide forward and back.

The "Automax" does all the rest automatically—feeds and forms cartons, places them in the carton conveyor pockets, tucks in the end flaps after the items are inserted, discharges the finished packages, restarts the cycle.

Just 70" long, 2½' wide, weighing only 750 lbs., caster mounting lets you move the "Automax" easily wherever you need it in your plant to fit in comfortably even where floor space is limited. And it's easy to service, easy to adjust by ordinary plant personnel—it doesn't take a master mechanic to handle the job!

The "Automax" is built with all the engineering skill, attention to details and insistance on top-quality materials which have made REDINGTON equipment world-famous wherever automatic packaging is performed. That means you're sure of long, trouble-free service.

REDINGTON "Automax" CYCLE CARTONER

- **one operator produces 45-50 or more filled packages per minute — a *whole-job* operation**
- **convenient size — 2½" wide, 70" long, caster mounted**
- **costs just $4,750.00 (plus freight)**

is priced to fit your budget. *You can have the "Automax" installed and turning out steady production for less than $5,000!* Compare this with what you pay one employee annually—not to mention overhead on that expense. And remember, no supplementary machine investment is required—you get *whole-job cartoning* with the single efficient "Automax" unit!

SEE US AT BOOTH NO. 514-518 AT THE PACKAGING MACHINERY SHOW

★ WRITE—*NOW*—FOR COMPLETE DETAILS . . .

An illustrated folder tells the whole story of the new "Automax" — specifications, method of operation, capacity, etc. Send for your copy today!

F. B. REDINGTON CO.

3022 ST. CHARLES ROAD, BELLWOOD, ILLINOIS

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AUTOMATIC MACHINES for CARTONING
WRAPPING • SPECIAL PACKAGING

Industry literature available free

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2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
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Collapsible Metal Tubes

A. H. Wirz, Inc., has released a comprehensive manual devoted to the proper selection and use of fold-up metal tubes. This 32-page handbook includes data on such specification factors as tube size, tube openings, tube closures, and tube liners. Selector charts serve as guides in determining the compatability of various products with such tube metals as aluminum, tin, lead, and special alloys. Circle No. **101.**

Corrugated Shipping Boxes

Stone Container Corp. offers a 16-page illustrated booklet, "How to Select the Proper Container for Your Product." The booklet contains sections on the right test of paperboard, best construction, checkpoints for adequate protection at minimum cost, best size, best handling, etc. Also included are tables on economical dimensions and on container test requirements for express shipments. Circle No. **102.**

Automatic Weighing Unit

ACF Industries, Inc., Avion Div., offers information on its two-level control relay, Model 219, designed for use with its Model 209 weighing cell. This unit is said to be especially suitable for checkweighing and rejecting under and overweight packages, sorting into weight groups, and accurate process control of preset weight limits. Special features include high speed and completely automatic control. Circle No. **103.**

Portable Packaging Unit

J. B. Dove and Sons has released information on its Electro-Sealer portable packaging unit developed for use in meat and delicatessen department of grocery stores. This unit, Model PT-22, can be placed on any existing table to set up a packaging station. It features stainless steel construction, rubber bumpers to prevent sliding, a recessed control panel with an indicator light, switch, and remote thermostatic control. The thermostat maintains the temperature of the sealing surface at any setting between 150° F. and 550° F. Circle No. **104.**

Automatic Web Splicer

Butler Automatic Machine, Inc., has a brochure on its automatic web splicer. This machine attaches, by splicing, a new web to depleting roll at the last full-printed panel. It operates automatically, in registration, and without stopping the wrapping machine. This machine is available in two models—SPL 100 and SPL 125. Model SPL 100 accommodates a web of from 3" to 17", has web cut-off ranging from 3" to 12"; Model SPL 125 accommodates a web width up to 25" and has a web cut-off up to 16". Both models occupy less than 4 sq. ft. of floor space. Circle No. **105.**

Electronic Register Controls

Machine O'Matic, Inc., offers literature on its electronic register control systems, now adaptable to punch press and other stamping applications. These electronic controls permit the forming of containers from a pre-lithographed or preprinted continuous roll of raw material, thus reducing manufacturing costs. A photoelectric scanner, operating in conjunction with a selector switch, detects errors and transmits the information to a correction motor, which in turn operates a correction transmission that makes the necessary mechanical adjustment. Circle No. **106.**

Automatic Packaging Machinery

Wright Machinery Co. offers its current brochure of new machinery models. This 34-page brochure presents data on recently developed bagging and weighing systems, Junior weigher, candy cleaner, electronic weigher, and other machinery. The purpose of each piece of equipment, the products it handles, how the machine functions, and the standard specifications for each are included in this comprehensive booklet. Illustrations accompany the technical material. Circle No. **107.**

Packaging Estimator

Anderson Bros. Mfg. Co. repeats its offer of a packaging estimator — a slide rule type of estimator enabling on-the-spot calculations for any size carton, cup, slice, or bar. Originally developed for use in the ice cream packaging industry, this handy packaging estimator has since found use in many other types of plants. Circle No. **108.**

Nitrogen Generators

Gas Atmospheres, Inc., has published Bulletin N-557, which describes its self-contained nitrogen generators. Illustrations of typical installations and a description of a new simplified one-station control panel are included. Charts of the over-all dimensions, weights of all standard sizes, and operating costs are also presented in this brochure. Circle No. **109.**

Putty Filling Machine

Hope Machine Co. offers literature on its high-speed, automatic filling machine for putty and glazing compound. The new unit makes possible the high-speed filling of these materials into 1-, 3-, 5-lb. cans on the same machine. A specially designed feeding mechanism moves the putty from the hopper to a manifold chest directly above three operating valves. The action of the piston filling arrangement draws into each cylinder the exact quantity of the product to be deposited. It is pushed down through the nozzles into the containers three at a time. Average filling speeds are 40 1-lb. cans/min., or 10 5-lb. cans/min., Hope says. Circle No. **110.**

Pneumatic Marker

The Pannier Corp. has literature on its pneumatic marker, a unit that will automatically stamp heat numbers, cut numbers, and ingot numbers into hot rolled steel. The unit is operated by pushing buttons in a

← For more information circle No. 275 on Card

remote control cabinet, which can be placed any practical distance from the actual marking operation. Each changeable type character on the marking head has a control button and an indicator dial on the control panel. Circle No. **111.**

Laboratory Crimper

Mojonnier Associates, Inc., offers a brochure on its air-operated, two-in-one laboratory crimper for aerosol containers. This unit features interchangeable collets capable of handling both standard cans and glass aerosol containers, both coated and uncoated glass, and is available with either can or bottle heads, or both. The bottle head uses interchangeable collets capable of handling all standard glass and nylon bottle neck finishes. Lightweight, compact, and versatile, this unit occupies very little valuable laboratory space, Mojonnier says. Circle No. **112.**

Tape-Binding Attachment

Dave Fischbein Co. has a Catalog-File of its bag closing equipment, which includes detailed information on its tape-binding attachment for the Fischbein portable bag-closing machine. This attachment, known as the Faseal, produces tape-bound closures on all types of multiwall paper bags. An attached knife severs tape and thread simultaneously after the closure is made. The bag closer, with the Faseal attachment, can be used as a completely portable unit or in suspension from a counterbalancing Fischbein suspension unit. Circle No. **113.**

Pre-Determined Counter

Hobson Miller Machinery Corp. offers a brochure on its new Tally "1000" pre-determined counter. This unit may be actuated by photoelectric control, micro switch, impact switch, limit switch, pressure switch, flow meter, or any type of single pole, single throw switching device. It can be used to control motors, heavy-duty solenoids, relays, conveyors, filling machines, printing presses choppers, shears, valves, kickers, markers, and so forth. Circle No. **114.**

Spray Stencil Ink

Bankers and Merchants, Inc.,Faymus Div., offers information on its spray stencil ink, which is packaged in an aerosol can. The thoroughly sealed container prevents spilling, leaking, or evaporation of the ink. A ball-bearing sealed within the container keeps the ink from drying out and lumping. The ink is available in black, green, blue, red, and a special erasure color which obliterates tan. Circle No. **115.**

Paper Packaging Machines

Lynch Corp. has a comprehensive, four-page brochure on its Marpac paper packaging machines especially designed for pad, tablet and book manufacturers, converters, etc. The machines are adjustable in less than 15 min. They can accommodate articles ranging from 5"x7-1/2"x3/4" to 10"x15"x5". One operator can wrap and seal from 900 to 1,000 pkgs./hr. Circle No. **116.**

Piston Fillers

Girdler Process Equipment Div. has published a four-page brochure #PED257 on its Votator fillers. These piston fillers will fill liquid and viscous products (both sanitary and industrial) into containers of metal, glass, or other rigid materials. Photographs illustrate the equipment, and specifications are given for all models. Speeds range up to 120/min. on a six-station filler to 1,000/min. on a 36-station filler. Circle No. **117.**

Liquid and Semi-Liquid Fillers

Horix Manufacturing Co. has just released Catalog 581 describing its line of fillers for liquid and semi-liquid products. This eight-page catalog is liberally illustrated, showing both gravity and vacuum fillers. Fillers are built to handle any shape or size container from 1 oz. to 2 gal., in 48-valve, high production models to hand-operated fillers. Circle No. **118.**

Cellulose Band Application

John Burton Machine Corp.'s Bulletin 107 describes a new machine for applying cellulose bands automatically. Machine feeds cellulose tubing to a predetermined length, cuts to produce the individual band, and pushes band down and over neck of container. Production speeds of 30 to 210 bands/min. are attained. Circle No. **119.**

Polyvinyl Resin Adhesives

Armour & Co.'s Adhesive Div. has released a four-page brochure on its Seban line of polyvinyl resin adhesives. Brochure illustrates several actual uses of Seban and lists some of the gluing machines on which Seban is used. Circle No. **120.**

Paper and Paperboard Silicone Coating

Dow Corning Corp. has published Catalog No. 8-601, describing their silicone coating for paper and paperboard. Product keeps gummy and tacky materials from sticking to bags, boxes, wraps, etc. Coatings will not contaminate, migrate, or alter stock. Included are several samples of various grades of paper that have silicone coatings applied to one side. Circle No. **121.**

Heat Seal Wrappers

Scandia Mfg. Co. offers a data sheet on its Model SUS wrapping machines. Using roll fed cellophane, waxed paper, etc., this equipment is available in two sizes that handle packages 3/8" to 3-3/4" high, 2" to 14" wide, and 2" to 10" long. Speeds range up to 60 pkgs./min. Circle No. **122.**

Collapsible Tubes

The Sheffield Tube Corp. has a 16-page booklet describing its products and services, including standard sizes and capacities of its collapsible metal tubes, standard tube nomenclature, details of tube measurement, and types and uses of openings. Circle No. **123.**

Polyethylene

Spencer Chemical Co. has a group of data sheets describing the properties of five different grades of Poly-Eth polyethylene material. The different grades of this material are designed for the extrusion of blown and flat film, and for film extrusion and extrusion coating. Characteristics are listed in tabular form and cover such factors as color, form, melt index, tensile strength, yield point, elongation, etc. Circle No. **124.**

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Packaging that is too light for heavy work, or too heavy for light work wastes money any way you look at it.

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CLASSIFIED ADVERTISING

Our classified advertising section is intended for use by those wishing to buy or sell used packaging equipment, to employ packaging personnel, seek such employment, offer or seek business opportunities. It is not available for general advertising. Terms: Cash with order. Rates: Up to 60 words, $10.00. If boxed, $20.00. Up to 120 words, $20.00. If boxed, $40.00. Up to 180 words, $30.00. If boxed, $60.00.

Circulation this issue in excess of 35,000

FOR SALE

For Sale — Simplex Model 4 high-speed automatic bag machine complete with forming plate, duplex roll mounting, variable speed drive, 110 volt a.c. motor. Machine accommodates forming plate bags from 1½" to 11½" wide, bag lengths adjustable from 3" to 19" long. Maximum roll width capacity 30". Machine in first class condition, price $2,450.00. Reply to Wings Shirt Co., 4 W. 33rd Street, New York, N. Y.

For Sale — Packaging machine, Battle Creek Model BT30 and Bond M L Dual Filler. Fills, seals folding boxes, both bottom and top. Continuous flow principle. Quickly convertible.

Wide range of boxes up to 10 inches in height, 30-40 per minute. Price new machine $15,120.00; this used one $5,000.00. Reply to W. J. Wittekind Co., 1041 Richmond Street, Cincinnati 3, Ohio.

Just Secured — most modern packaging and food processing machinery. Equipment installed within last 2 years. Available at great savings.

4—Hayssen Model F Compaks with net weight scales, bulk and dribble feeds, Electric Eyes.
3—Package Machinery Model C Transwraps, with net weight scales, bulk and dribble feeds, Electric Eyes.
1—Package Machinery Transwrap Model B, Auger Feed, Electric Eye.
8—Scandia Model SFS6F high speed automatic Wrappers with Electric Eyes.
4—Ceco Model 40-9½-CG Automatic Adjustable Cartoning Units. Also Model TT.
2—Hayssen Model 7—17 Box Wrappers.
1—Pneumatic Scale Automatic Carton Feeder, Bottom Sealer and Top Sealer with interconnecting conveyors.
1—Pneumatic Scale Rotary Carton Top Sealing Unit.
1—Ceco Model A3901-12 Cartoning Machine with compression unit.
1—Schroeder Corrugated Carton Sealer.
2—George H. Fry Bag Heat Sealer, Model CBS.
1—Amsco Sealer.
4—Stokes & Smith Model G1 and G2 Auger Powder Fillers.
2—Mateer Powder Fillers, Model 31-A.
1—Karl Kiefer Rotary Bottle Filler.
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1—Stokes & Smith Box Sealer.
6—Fitzpatrick Stainless Steel Comminuters, Model D-6.
4—Day size G, 1500 lb. Ribbon type Powder Mixers.

Rietz Disintegrators, Entoleter types BF2 and BF4, Kettles, other misc. equipment. Complete details and prices available on request: UNION STANDARD EQUIPMENT COMPANY, 318 Lafayette Street, New York 12, N. Y. Phone: Canal 6-5334.

SITUATION WANTED

Packaging Engineer — Coordinator — Director. Central or South America challenge desired. Thorough know-how background, including design, materials, specifications, mechanization, and direction with marketing, sales, advertising, purchasing, and production. Emphasis upon warehousing, distribution, and plant management. Currently associated with major manufacturer, packager, and distributor in similar capacity. Excellent health. Married, one child. Resume upon request. Please reply to Box 301, Package Engineering, 185 N. Wabash Ave., Chicago 1, Ill.

POSITIONS AVAILABLE

Dealers Wanted — It pays big profits to sell "Speedy Bag Packagers." This portable, self-contained machine is a labor-saving must for people who package into poly bags. Packages hundreds of items (shirts to sandwiches). Territories open, Pennsylvania, Virginia, South, Mid-West, Western, others. Write full particulars, references, etc. Errich International Corp., 5 E. 35th Street, New York, N. Y.

Wanted — By New York firm, mechanic 30-40 years, with knowledge of machine tools and experience assembling and installing automatic machines. Please reply to Box 302, Package Engineering, 185 N. Wabash Ave., Chicago 1, Ill.

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What we think

Human resources for machine development

As today's pressures force more and more companies to do a rising volume of packaging in less space and in less time than ever before, everyone's interest in packaging machinery heightens. We are glad to see users and suppliers alike showing great resourcefulness in machine development. It is especially gratifying to see users more articulately detailing their requirements to machinery builders.

An individual's talents—and needs

Unfortunately this emphasis on machinery often turns the spotlight away from a most important element: The man who must make it run and keep it running. Companies having involved machinery specification programs sometimes fail to use the help this man has to offer.

All this ties in with two problems currently plaguing industry in general. One is the question of the contribution by an individual to an automated operation. Regardless of the raging controversy over the measurement of productivity, the fact remains that a mechanized line still depends on someone's skilled hands to keep it running. Anyone questioning this should be around a major operation when a breakdown occurs and watch just what happens.

The second problem involves the personal feelings and job satisfactions the individual worker experiences in an aura of automation. However difficult it may be to generalize, there is no question that our concepts of sources of worker satisfaction are getting quite a shaking-up. There is no easy answer to the question of reconciling one's natural desire for participation and pride of craftsmanship with the hard realities and obvious tensions of the repetitive monotony accompanying high-speed automatic operations.

Bringing these general problems into focus against a background of technical and operational packaging, we urge those who manage our plants and lines to pay closer attention to the potentially valuable contributions those who man the lines are prepared to make. There are four major areas for such activity:

(1) When developing plans on paper or working out theoretical machine possibilities, get the views and opinions of mechanics, supervisors, floor-ladies, and machine attendants.

(2) Following initial installation of a brand new machine, make the most of the sugesstions of line crews who "live" with the equipment.

(3) Do the same thing when developing modifications *following* experience with the initial or trial machine.

(4) Above all, keep in mind these considerations when looking at the problems of those who keep all this equipment running—once the shakedown cruise is over.

There is more to it than merely being receptive to the opinions of those manning such machinery. Management must have a time tolerance. No matter how carefully machine specifications are prepared and no matter how accurately the machinery builder responds to the articulately stated requirements of a user, the fact remains that actual experience induces many changes and modifications.

Therefore, the burden rests with the package user to take the lead in making his equipment fit his needs. Here is where the time tolerance comes in. Extended periods of testing and even production running with materials and packages (and various modifications of them) frequently are necessary. It takes patience and confidence.

Man's skill and judgment: The magic key

But the magic key to the whole business is being able to inspire and induce the practical operating personnel on the lines to put their imaginations into action. It's like the old story of the expert who replied to a demand for an itemized bill: "Tapping with hammer, $1.00. Knowing where to tap, $49.00." We have plenty of packaging line people who know where to tap. We hope their superiors let them tap where they will.

Bruce Holmgren

Editor

The Ludlow Line Protects Your Products Better

Can this product run circles around yours?

Shipping Superintendent Charles D. Fraizer, at Kaiser Aluminum's Newark, Ohio plant (left) meets with Raymond W. O'Brien, spiral wrapping consultant from Ludlow's staff of field engineers.

If you ship products in coils or straight lengths, Ludlow's spiralwrap paper — applied by Ludlow spiral wrapping equipment — will give you attractive, dependable packages in a fraction of the time it takes to wrap them by hand.

The wide variety of Ludlow creped papers available for spiral wrapping includes: regular and waxed creped kraft, asphalt and non-asphaltic (non-staining) laminated; also reinforced paper for heavy-duty packaging; VPI paper for anti-rust packaging; non-asphaltic neutral paper for non-corrosive packaging and now polyethylene, laminated or coated. All of these papers are available in plain or printed form. Printing is done *before* creping for maximum legibility.

Ludlow spiralwrap papers, free engineering service and a complete range of machines are typical of Ludlow's job-tailored packaging products. Look to Ludlow for greater protection, lower costs and faster packaging. We'll consider it a privilege to serve you.

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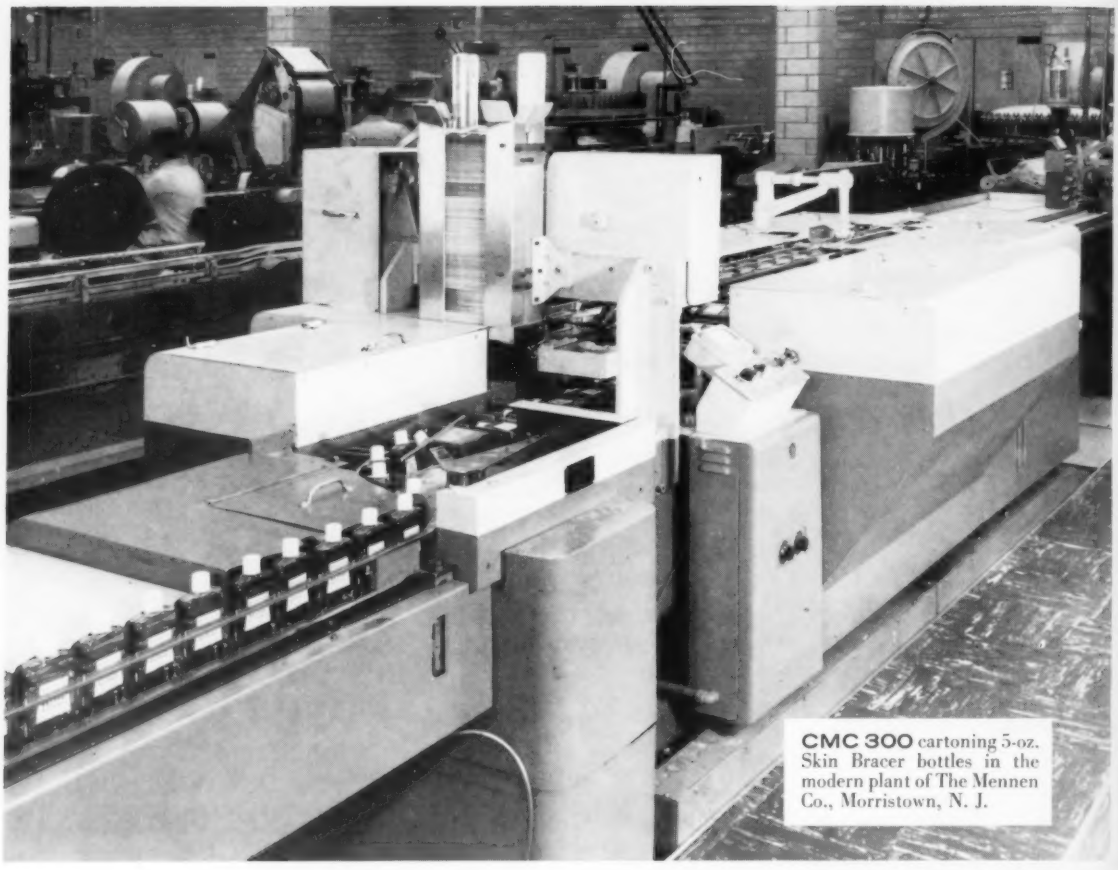

CMC 300 cartoning 5-oz. Skin Bracer bottles in the modern plant of The Mennen Co., Morristown, N. J.

Cartoning at 300+ with the new Jones CMC-300

PROBLEM How to increase production to 200—300—even 400 cartons per minute without plant expansion—and to obtain additional savings in reduced labor and maintenance costs.

SOLUTION Successful, forward looking concerns like The Mennen Co. are anticipating these "facts of packaging life" by investigating and buying the new Jones CMC 300. It is designed to handle small and medium size bottles, tubes and other products, 180 to 400 per minute. It is equally justified on larger cartons at lower speeds.

The CMC 300 is not a superficially "souped-up" version of an old model. It is basically engineered to perform at 300+ with the same efficiency, and with less wear and maintenance, than older machines at 150 per minute. CMC 300 performance is based on:

1. Fundamental principles of product and carton handling.
2. The most durable and shock-proof power train ever employed on a cartoner.
3. A heavy, vibration-free cast iron frame.
4. Use of the finest materials and commercial parts.

If your product is cartoned in large volume, 300+ per minute is now practical and profitable—it will soon be an economic "must." Let us show you a Jones CMC 300 at our factory or in actual production. *See the CMC-300 in booth 414, PM & ME, Atlantic City, March 25-28.*

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